TRBOnet Watch User Guide

December 15, 2014

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Preface

This document is intended for TRBOnet Watch users to install, upgrade and configure the system. It describes system requirements, installation and configuration process of TRBOnet Watch RadioServer and Dispatch Console.

About the Company

Neocom Software, Ltd was created in 2007 on the basis of Neocom, Ltd., which was founded in 1997 and is the famous supplier of radio communication systems for professional or license-free use on the ground, seas or rivers.

Today, Neocom Software has Motorola Application Partner status in EMEA, Latin America and the Asia Pacific region, and Motorola Application Provider status in North America.

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EMEA	+7 812 45 70 893	
APAC	+7 812 45 70 893	

Copyright

Intellectual property rights protect the voice coding Technology embodied in this product including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice coding technology is licensed solely for use within this Communications Equipment. U.S. Pat. Nos. 6,199,037, 5,870,405, 5,754,974, 5,664,051, 5,630,011, 5,517,511, 5,491,772, 5,247,579, 5,226,108, 5,226,084, 5,216,747 and 5,081,681.

Hardware and Software Requirements

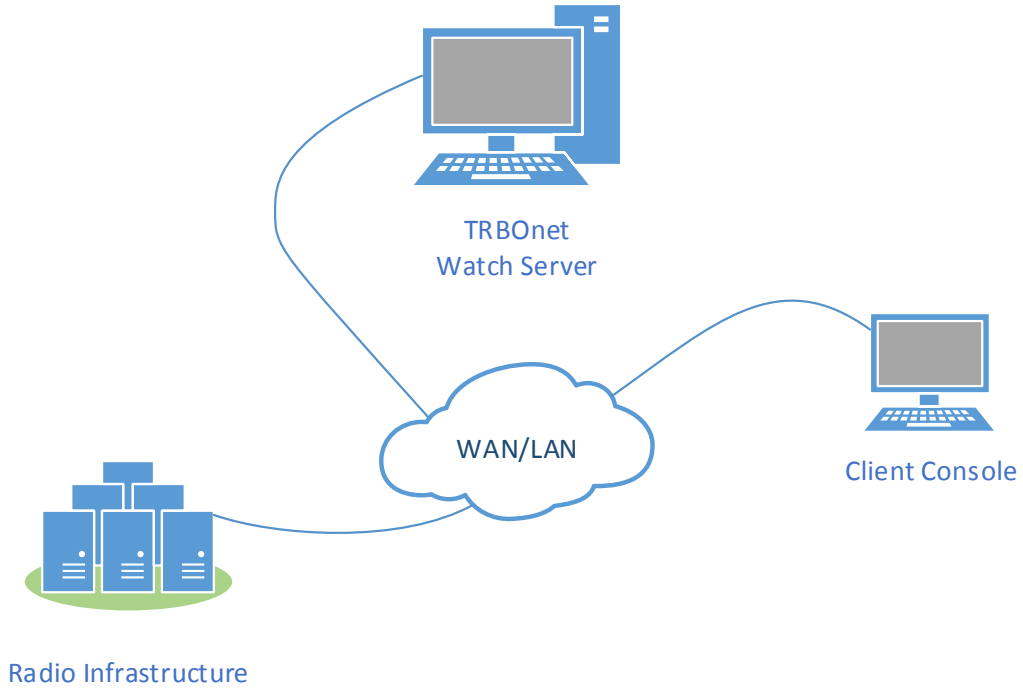
TRBOnet Watch Server					
Voice Channels	4	8	16	24	24+
CPU	Intel Core i3	Intel Core i5	Intel Core i7, 4 Cores	Intel Core i7, 6 Cores	Contact technical support
Memory	2 GB	4 GB	4 GB	8 GB	
HDD	300 MB for installation files, +1 MB per 1 minute of voice recording				
Sound Card	No				
Supported OS	Windows 7, Windows 8, Windows Server 2008, Windows Server 2012				
Software	.NET Framework 4.0, MS SQL Server 2008 Express Edition or higher				

Dispatch Console	
CPU	Intel Core i3
Memory	4 GB
HDD	70 MB for installation files
Sound Card	Yes
Display	1280x1024 minimal resolution, 1600x900 recommended resolution
Additional Devices	Speakers and microphone or headset. Imtradex devices are recommended.
Supported OS	Windows 7, Windows 8
Software	.NET Framework 4.0

Architecture Overview

TRBOnet Watch includes two following logical components:

- **Server software** (TRBOnet Watch Server) implements the MOTOTRBO™ protocols, manages connection to repeaters and stores data.
- **Client Console.** Allows monitoring and analyzing data traffic on **IP Site Connect**, **Capacity Plus**, **Linked Capacity Plus** and **Connect Plus** repeaters.



TRBOnet Watch Server Installation

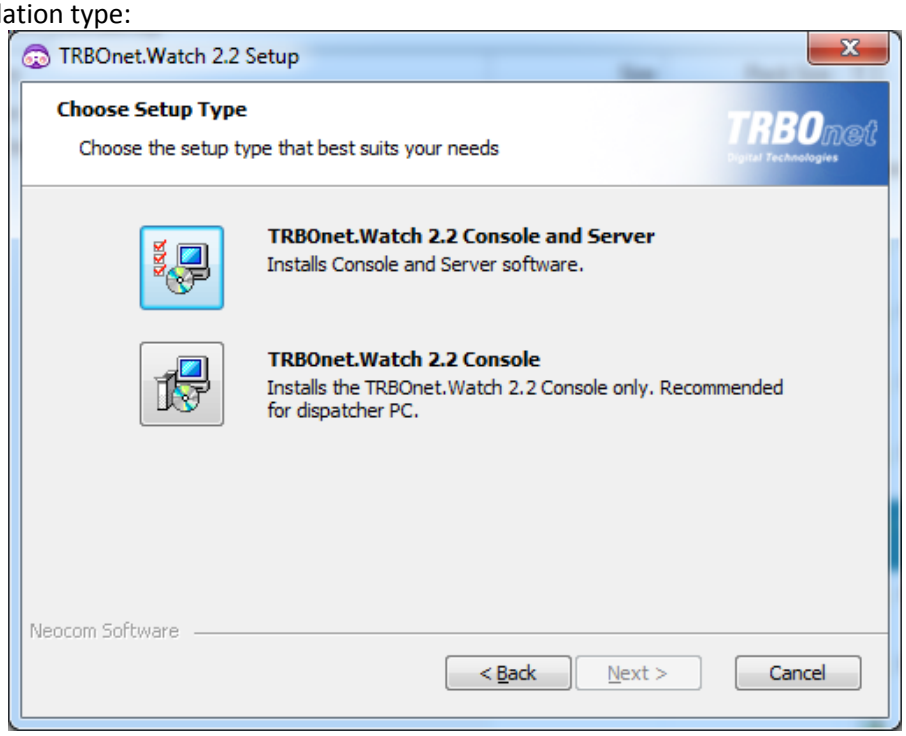
TRBOnet Watch application has been designed to monitor radio network. TRBOnet Watch Console can connect to repeaters registered in TRBOnet Watch Server. All activity on repeaters' slots will be displayed in TRBOnet Watch Console.

Installation Steps

Double-click the **TRBOnet Watch_vX.X.exe** file to run the TRBOnet Watch setup.

Click Next > button to continue. Click **I accept the terms in the License Agreement.**

Select installation type:

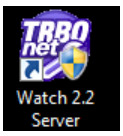

TRBOnet.Watch 2.2 Setup
Choose Setup Type
Choose the setup type that best suits your needs
TRBOnet
TRBOnet.Watch 2.2 Console and Server
Installs Console and Server software.
TRBOnet.Watch 2.2 Console
Installs the TRBOnet.Watch 2.2 Console only. Recommended for dispatcher PC.
Neocom Software
< Back
Next >
Cancel

1. Select **TRBOnet.Watch 2.2 Console and Server** to install TRBOnet Watch Server and TRBOnet Dispatch Console.
2. Click Next > button to continue the installation.
3. TRBOnet Watch is ready to install.
4. Click Install button to install the software.
5. After installation completes, click Finish button to exit the installation wizard.

TRBOnet Watch Server Configuration

TRBOnet provides TRBOnet Watch Server Configurator tool to customize server parameters.

To open TRBOnet Monitoring Configuration do the following:

- Use 

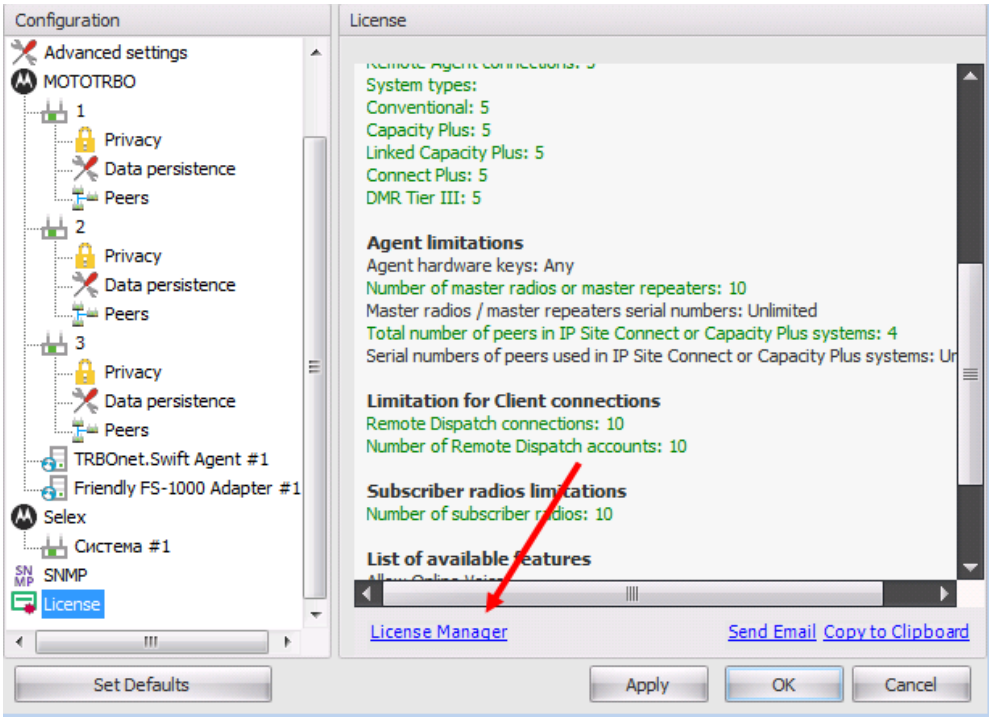
shortcut on the desktop.
- In the Start menu and **select All Programs/Neocom Software/TRBOnet Watch/Watch 2.2 Server.**

License Information

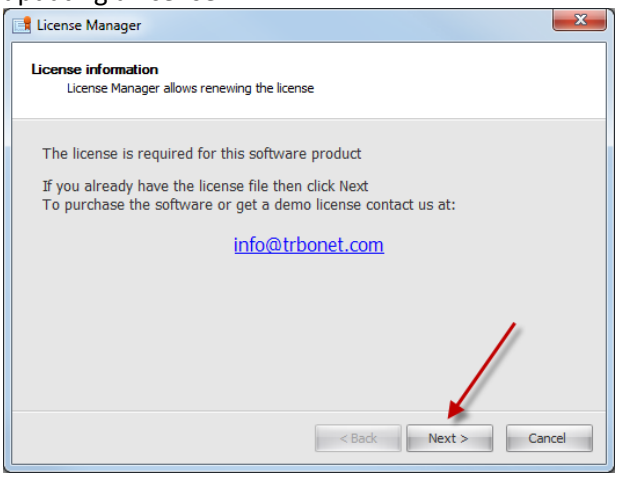
License Manager

Before start to work, check that your license is not expired. If you have a commercial license or would like to update you current license with extended demo license you can update it.

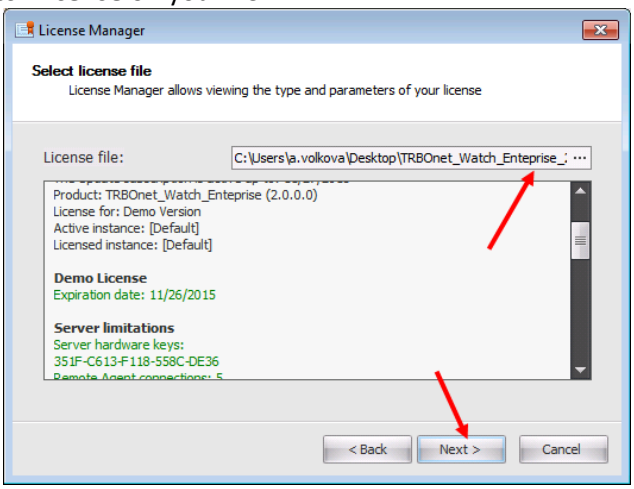
Go to **License Manager** to see a current license details or to update a license.

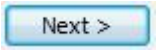


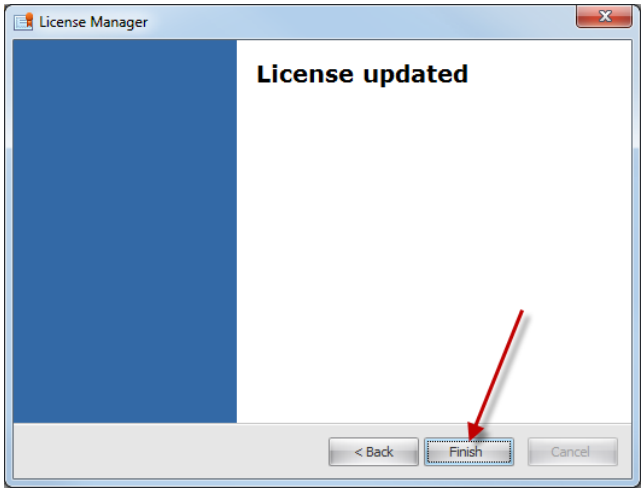
License Manager allows updating a license:

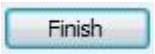

License Manager
License information
License Manager allows renewing the license
The license is required for this software product
If you already have the license file then click Next
To purchase the software or get a demo license contact us at:
info@trbonet.com
< Back
Next >
Cancel

Browse license file to update.
Select new license file.
Select file **TRBOnet Watch.license** on your PC:



Click  button to continue.

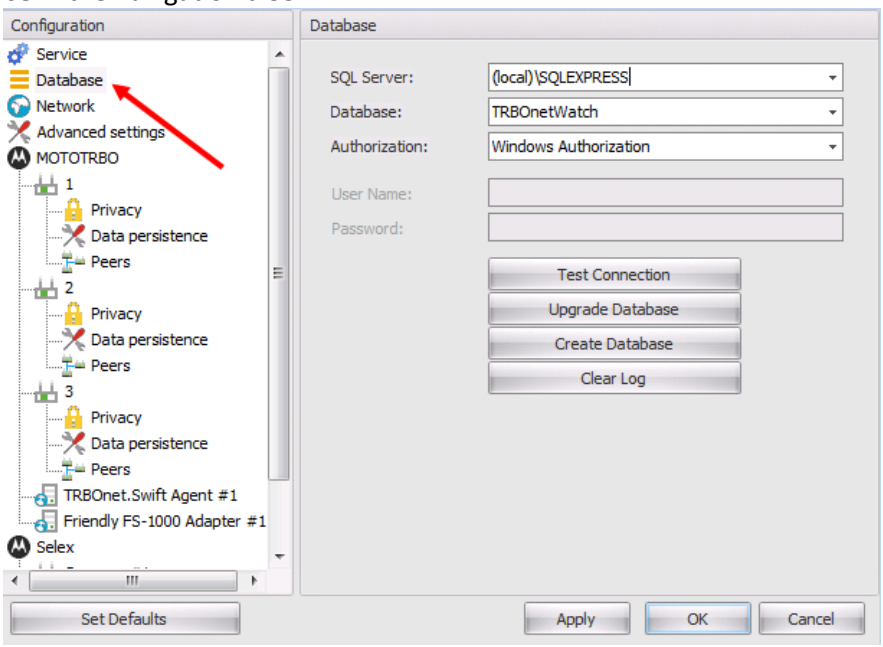


Click  button to close License Manager.

Note: delete all previous licenses files before using.

Create TRBOnet Watch Database

Select **Database** in the navigation tree:



Specify the following parameters:

- **SQL Server** - specify SQL Server name and instance ((local)\SQLEXPRESS instance is set by default).
- **Database** - specify database name (TRBOnetWatch is set by default).
- **Authentication** - select Windows or SQL Server Authentication.
- Specify **User Name** and **Password** for **SQL Server Authentication**.

Click **''Create Database''** to create a new database with selected parameters for the first installation.

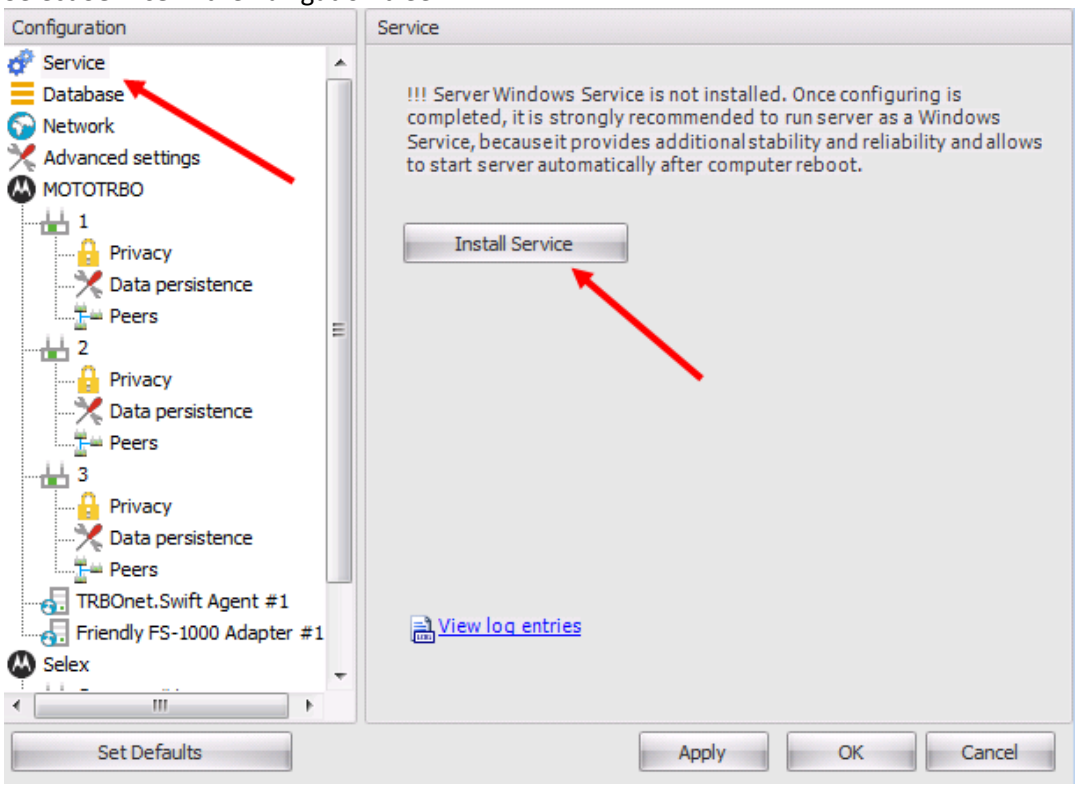
Click **''Upgrade Database''** to upgrade the database structure to the latest version for TRBOnet Watch upgrade.

Click **''Test Connection''** to check if TRBOnet Watch can connect to the database.

Click **''Clear Log''** to delete log files from the database log.

Install TRBOnet Watch Service

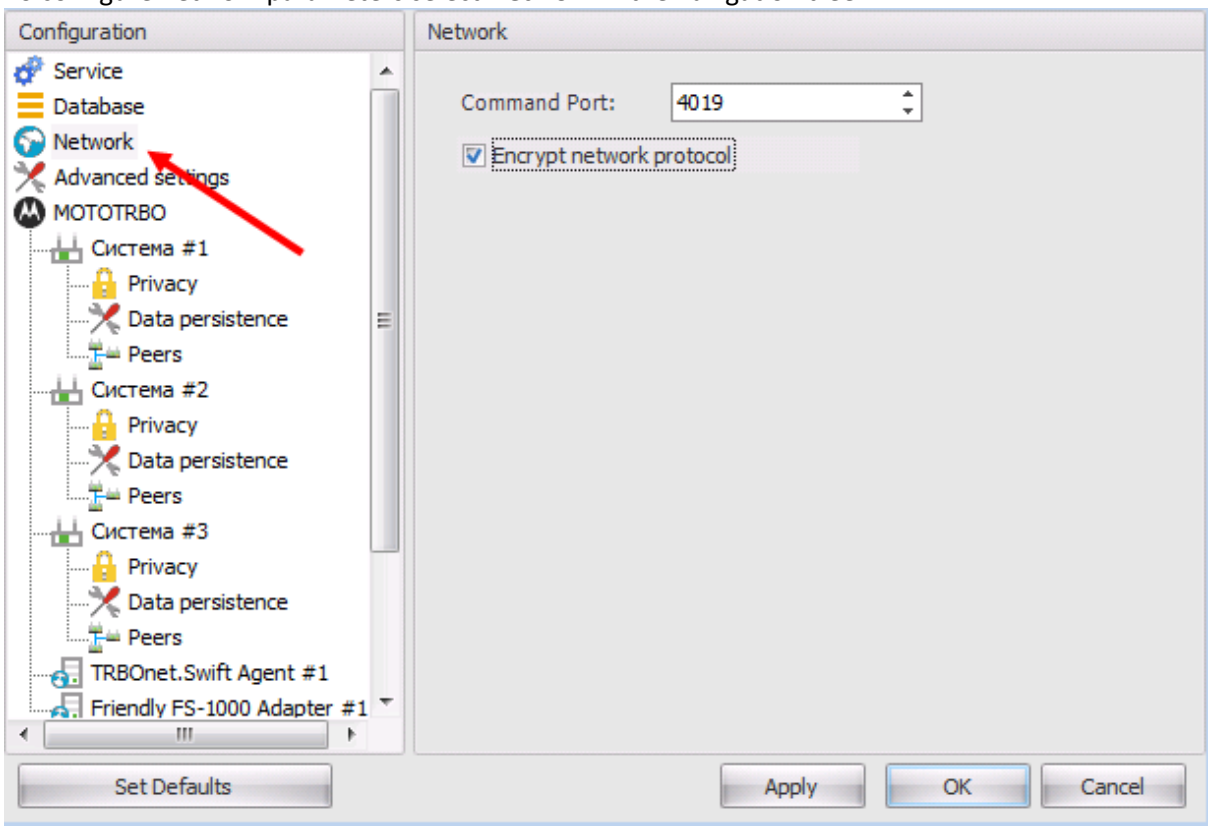
Select **Service** in the navigation tree:



Click ''**Install Service**'' button.

Configure Network Parameters

To configure network parameters select **Network** in the navigation tree:

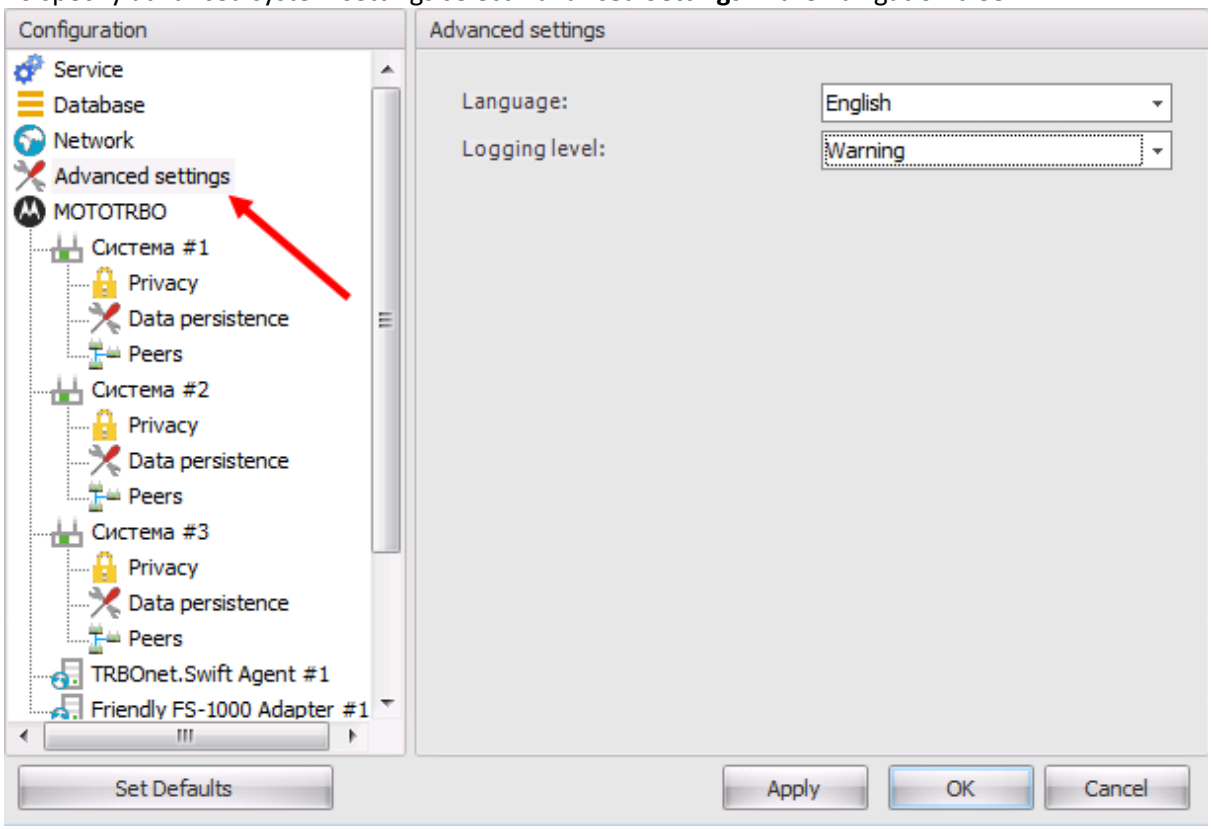


Configure the following parameters:

- **Command port** - port to connect by TRBOnet Watch Console. Specify command port (4019 set by default).
- **Encrypt network protocol** – check to use encryption while data transfer in the network.

Advanced settings

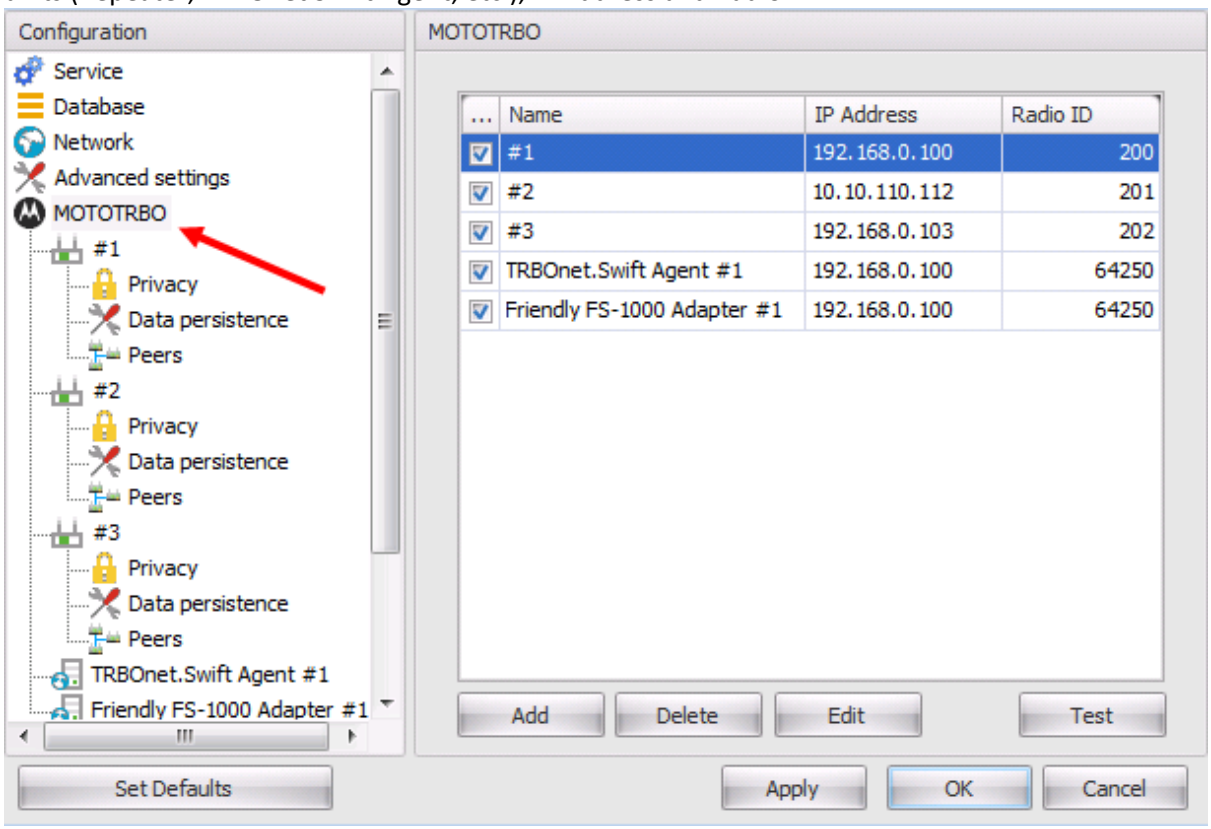
To specify advanced system settings select **Advanced Settings** in the navigation tree:



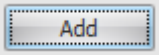
- **Language** - select interface language in the dropdown list.
- **Logging level** - select logging level in the dropdown list. Determines the amount of data stored in the System Log. This information is used by technical support for troubleshooting, therefore it is recommended to keep the value unchanged.

MOTOTRBO System Elements

All Radio system elements based on MOTOTRBO™ services are represented in the table including its units (Repeater, TRBOnet Swift Agent, etc.), IP Address and Radio ID:



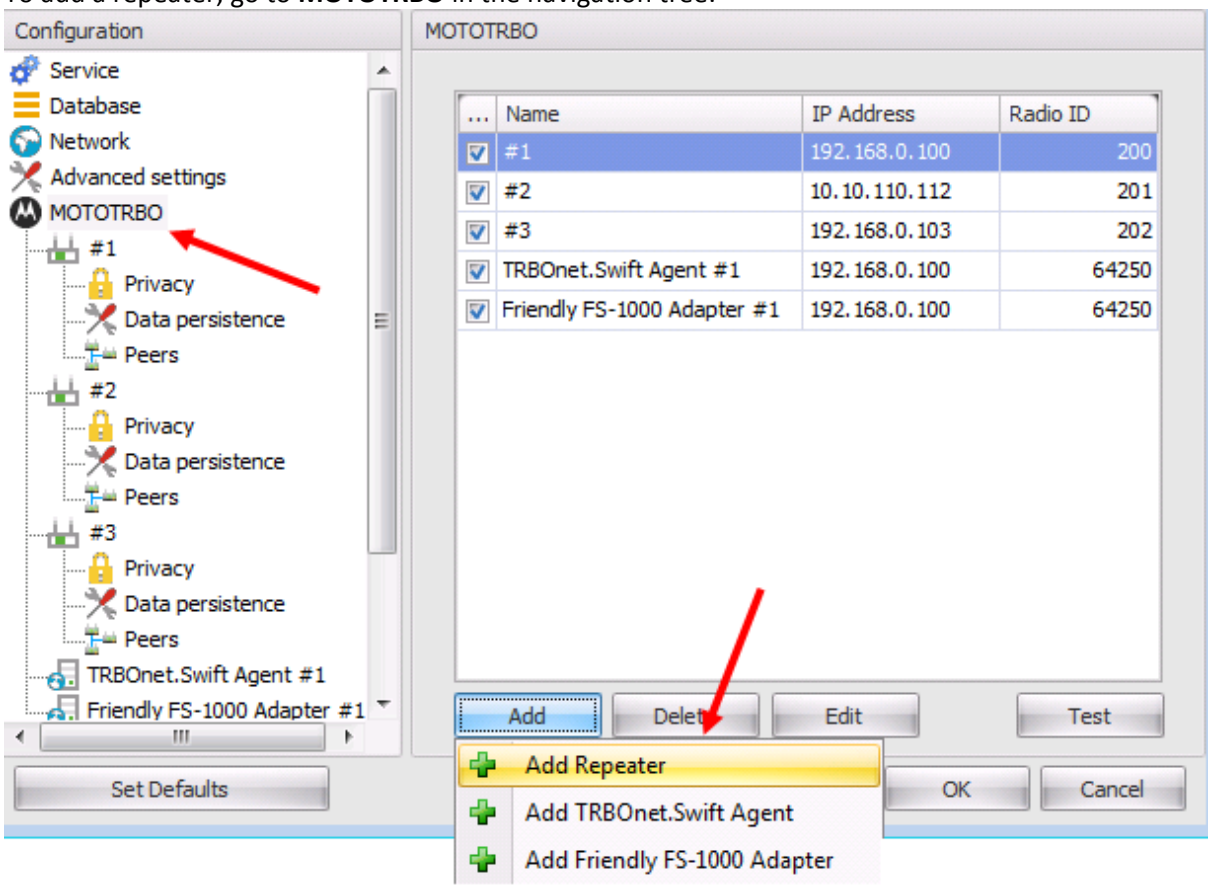
Note: The Radio ID should be unique for each software connection to repeater. For example, to connect TRBOnet Enterprise use port 80000, TRBOnet Watch - 80001 and RDAC - 80002. Also, use different IDs for connection to repeater from different PCs.

To add elements in the system (Repeater, TRBOnet Swift Agent etc.), click 

button and select type of element in the dropdown list.

Add a MOTORBO Repeater

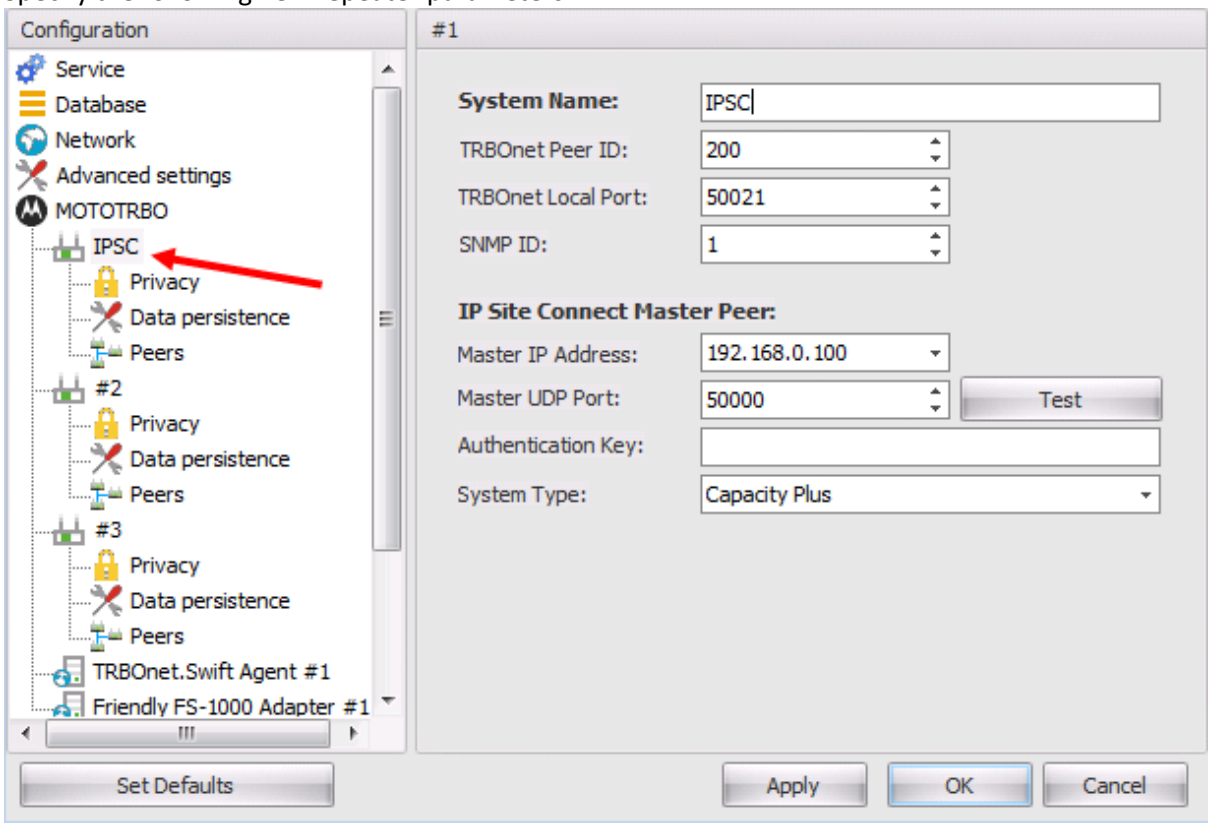
To add a repeater, go to **MOTOTRBO** in the navigation tree:



Click

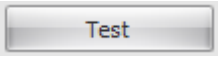
button and select **Add Repeater** in the navigation tree.

Specify the following new repeater parameters:



- **System Name** - specify a repeater's name in the system to display in TRBOnet Watch Console.
- **TRBOnet Peer ID** - specify a unique Peer ID for TRBOnet Watch Server in radio system.
- **TRBOnet Local Port** - specify a local port of TRBOnet Watch Server to accept connections from the repeater. Use unique ports for each repeater connection if there are several repeaters connected.
- **SNMP ID** – for more detail on SNMP see SNMP (Simple Network Management Protocol).

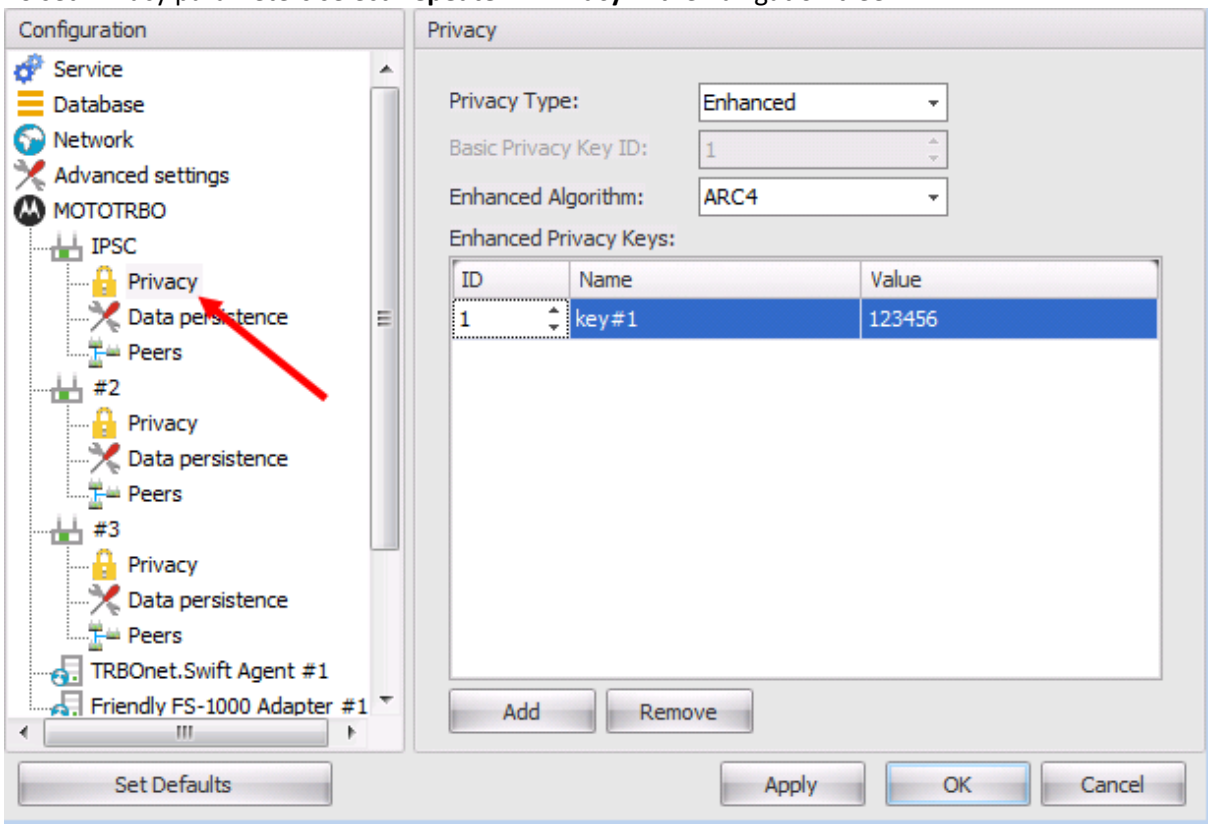
IP Site Connect Master Peer:

- **Master IP Address** - specify Ethernet IP address of the repeater from its codeplug.
- **Master UDP Port** - specify UDP port of Master repeater to connect. Click 

button to check the connection to Master repeater. A window will appear. In case of success it should show firmware version and serial number of the repeater.
- **Authentication Key** - specify the repeater's authentication key from code plug if it is used.
- **System Type** - select system type in the dropdown list. Specify a unique System Identifier for a **Capacity Plus** system. Use the same System Identifier as for Control Station from the same system.

Privacy

To set Privacy parameters select **Repeater** > **Privacy** in the navigation tree:



Specify the following Privacy parameters:

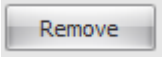
- **Privacy Type** - select **None** / **Basic** / **Enhanced** Privacy.
- **Basic Privacy Key ID** - available when **Basic** Privacy Type selected.
- **Enhanced Algorithm** – select encryption type if you are going to use additional encryption. Available when **Enhanced** Privacy Type selected.

Note: For more details on ARC4 see https://en.wikipedia.org/wiki/RC4 and for AES see https://en.wikipedia.org/wiki/Advanced_Encryption_Standard articles. For using these enhanced algorithms special license required.

- **Enhanced Privacy Keys** - available when **Enhanced** Privacy Type selected.

To add **Enhanced Privacy Keys** click

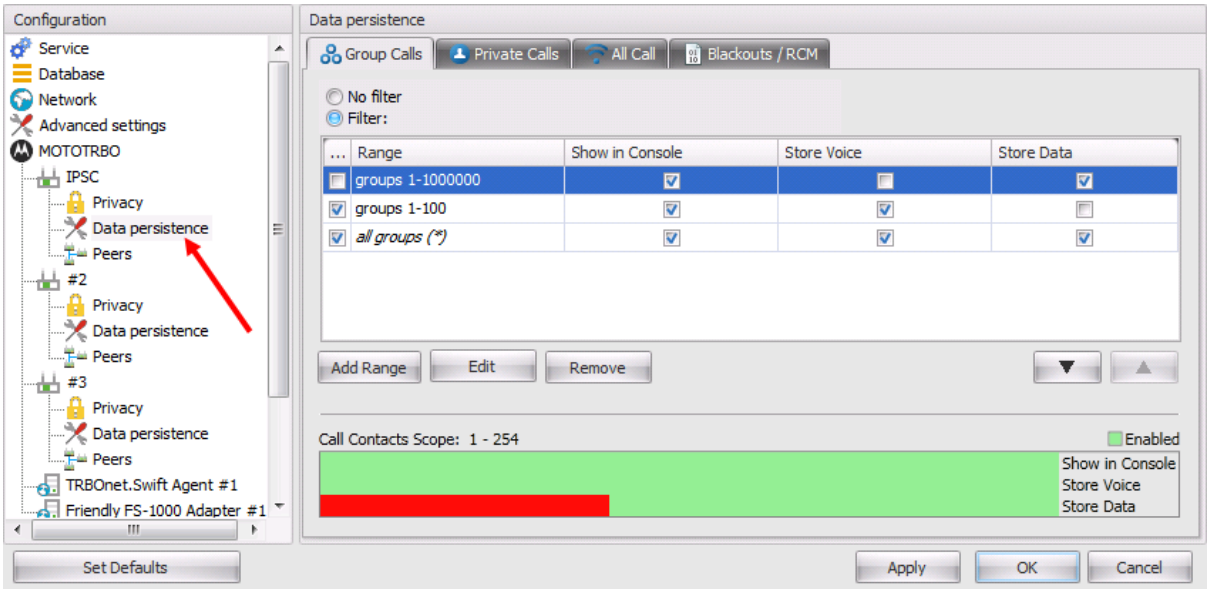
button.
Enhanced Privacy Key automatically added in the table.
Specify Enhanced Privacy Key **ID**, **Name** and **Value** in the table.

To remove Enhanced Privacy Key click 

button.

Data Persistence

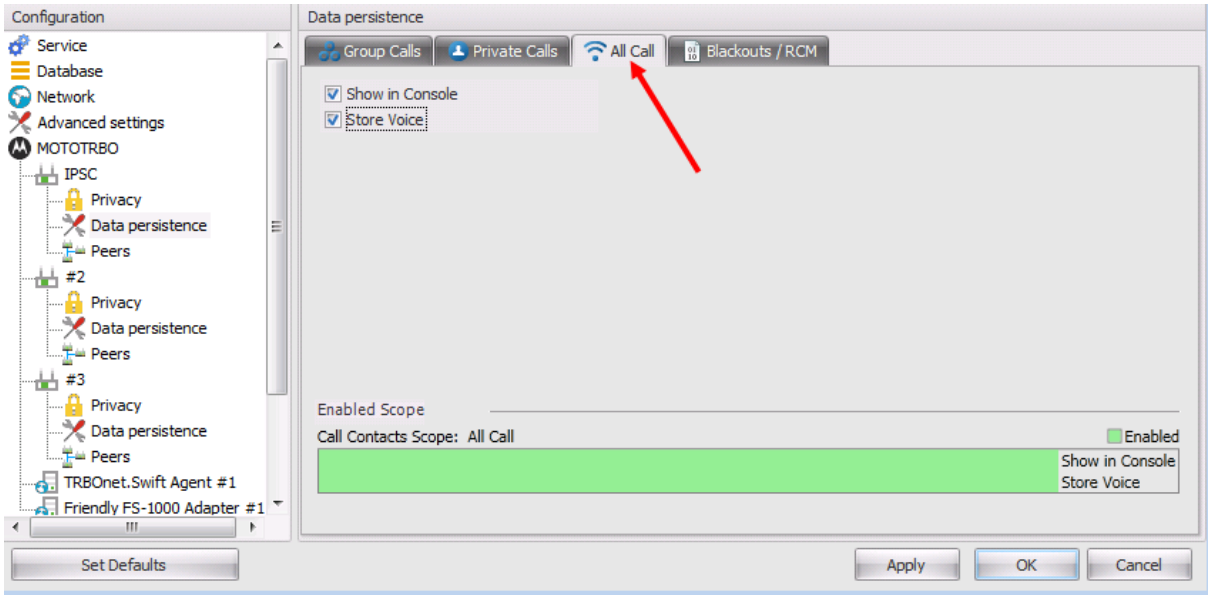
On the **Data Persistence** page you can set rules for calls and blackouts of the selected repeater displaying in the Dispatch Console and storing Voice and/or data:



On the **Group Calls** and **Private Calls** tabs you can set rules for group and Private calls voice and data according to a selected filters configured below:

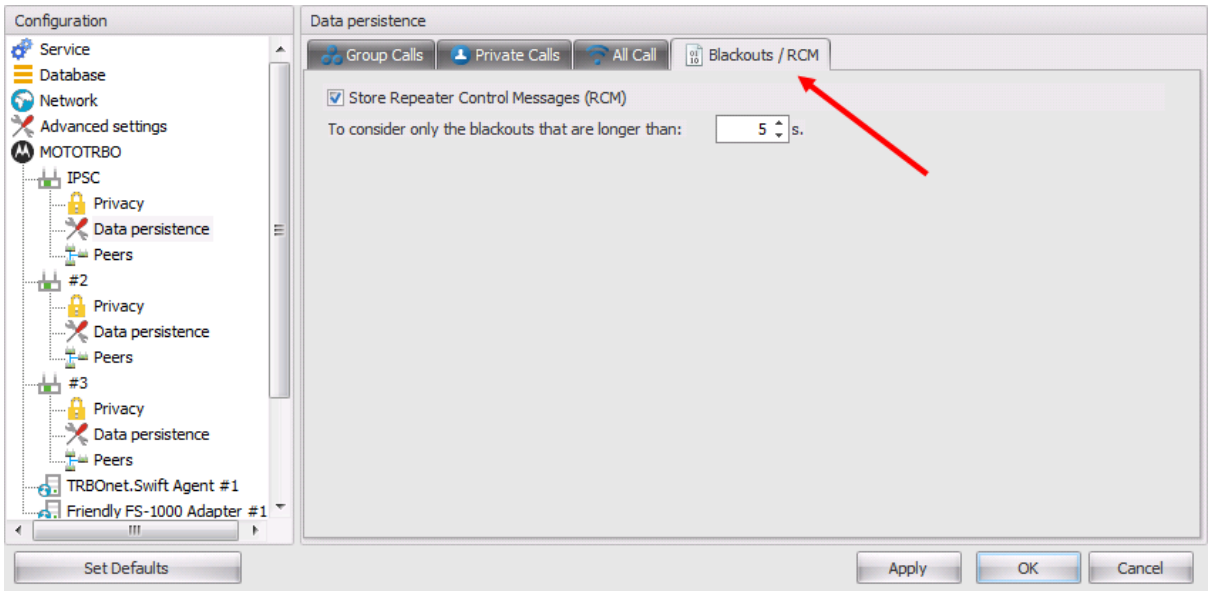
Group Calls and Private Calls		
No Filter	Allows system displaying in the TRBOnet Watch Dispatch Console and storing in the database all voice and data.	
Filter	Enables advanced filter parameters for Group and Private calls	
Range	Shows range of groups (for Group Calls) and range of subscribers (for Private Calls) to enable the rules. Check groups or subscribers range for applying the rules.	
Show in Console	If not checked, selected items data is hidden in the TRBOnet Watch Dispatch Console.	
Store Voice	Check to store selected groups or subscribers voice in the database.	
Controls		
Add Range	''Add specified …'' adds individual custom groups or subscribers with individual IDs.	''… Range'' adds groups or subscriber range with IDs according to selected range.
Edit	Allows editing groups (subscribers) range values.	
Remove	Removes selected groups (subscribers) range.	
▼ ▲	Allows changing selected items priority level.	
Scope. Shows graphically selected filter parameters.		

On the **All Call** tab you can select filters for All Calls:



- **Show in Console** – select to allow displaying All Calls data in TRBOnet Watch Dispatch Console.
- **Store Voice** – select to store All Call voice communications in the database.
- **Scope** - shows graphically selected filter parameters.

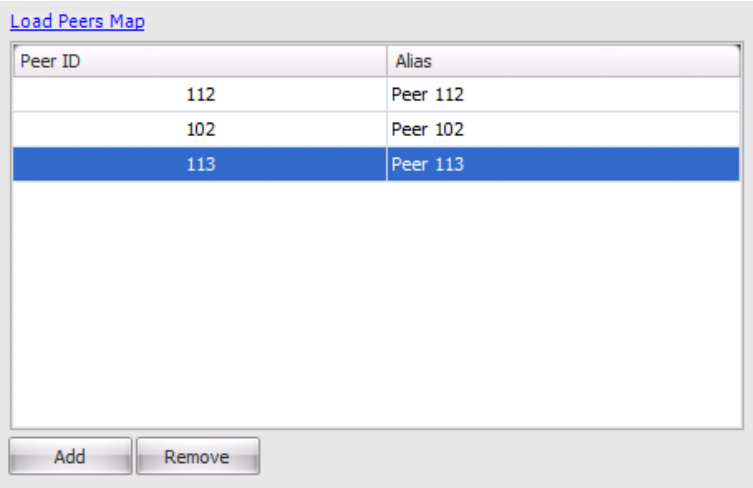
On the **Blackouts/RCM** tab you can set parameters for Repeater Control Messages monitoring. **Repeater Control Messages (RCM)** – shows repeater service messages (Start/Stop TX, Interference, etc.). Blackout is a time period when all channels busy in **Capacity Plus** and **Linked Capacity Plus** systems.



- **Store Repeater Control Messages (RCM)** – RCM packets stored in the database and include blackouts in the reports.
- **To consider only the blackouts that are longer than** – sets minimal value for TRBOnet Watch to monitor RCM. RCM packets less than selected values will be ignored.

Peers

TRBOnet Watch uses peers as criteria to generate **Reports** and **Analysis**. Software components (e.g. TRBOnet Enterprise, RDAC Console) also act as peers.

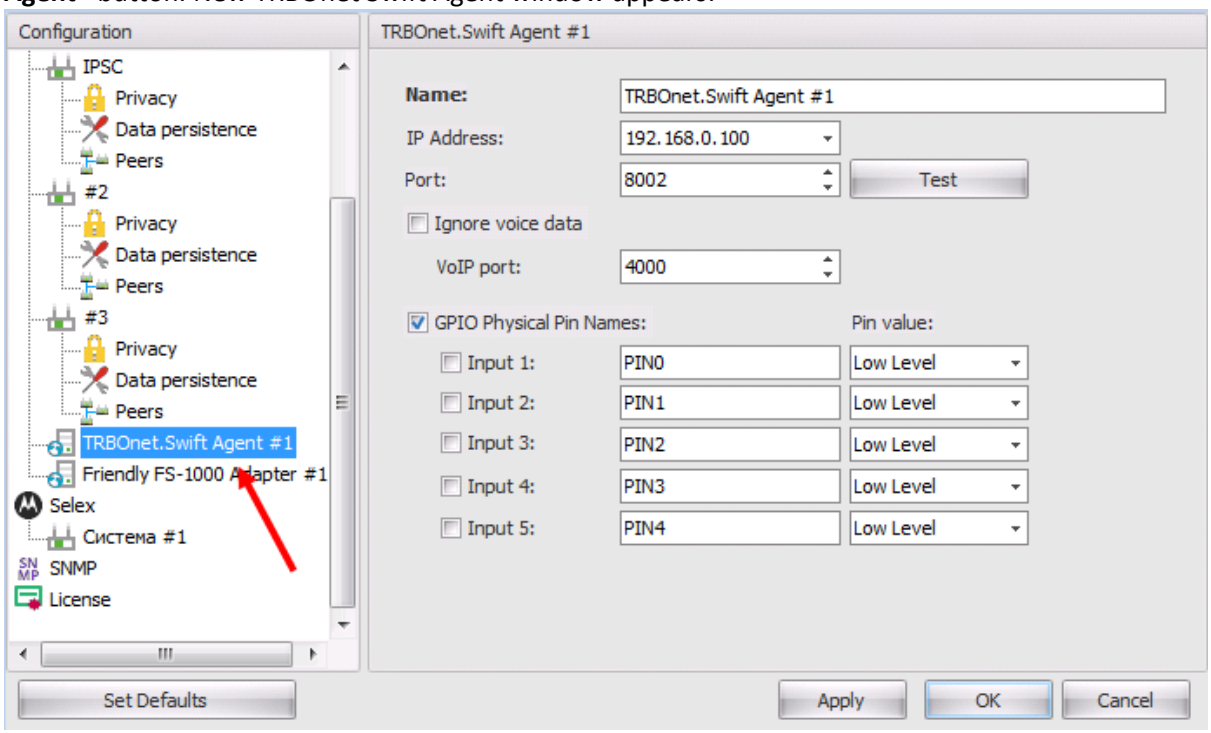


- **Load Peers Map** – downloads all available peers of the selected repeater in case of successful connection.
- **Peer ID** – a unique ID for the peer.
- **Alias** – select a name for the peer to display in TRBOnet Watch Dispatch Console.

Click **''Add**'' button to add new peer for selected repeater.

Add TRBOnet Swift Agent

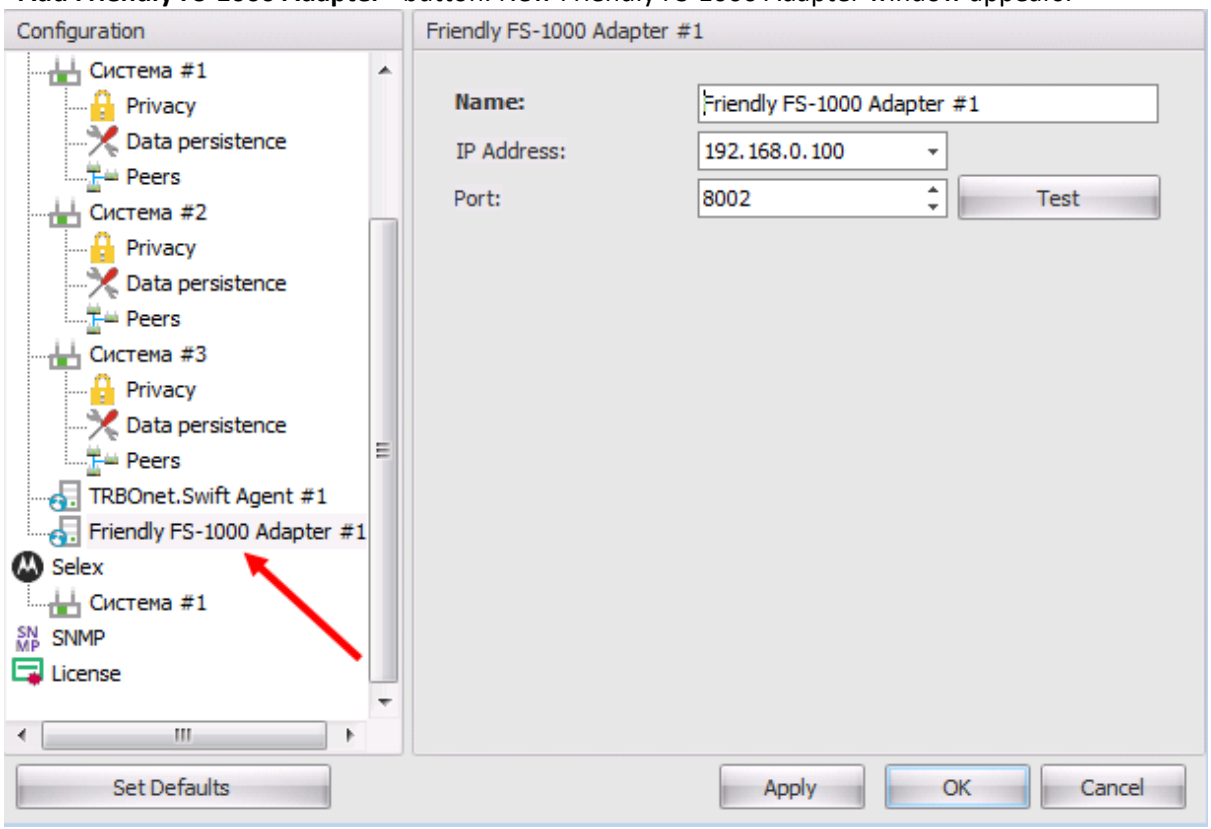
TRBOnet Swift Agent functions as a gateway to receive and transmit voice and data.
To add TRBOnet Swift Agent go to **MOTOTRBO** in the navigation tree and click **''Add TRBOnet.Swift Agent''** button. New TRBOnet Swift Agent window appears:



- **Name** - specify TRBOnet Swift Agent name to display in the Dispatcher Console.
- **IP Address** - select an IP Address of the new Swift Agent network interface.
- **Port** - specify port to connect to the new Swift Agent (8002 set by default). Click ''**Test**'' button to check the connection.
- **Ignore voice data** – select to use TRBOnet Swift Agent to transmit the data and voice calls indication (Voice Recording not available at this case).
- **VoIP port** - Port for audio communication. Select VoIP port (4000 set by default).
- **GPIO Physical Pin Names** – allows set Pin Values for selected TRBOnet Swift Agent inputs below.

Add Friendly FS-1000 Adapter

Friendly FS-1000 Adapter allows to work with radios in the local networks of monitoring and to transfer the data. To add Friendly FS-1000 Adapter go to **MOTOTRBO** in the navigation tree and click ''**Add Friendly FS-1000 Adapter**'' button. New Friendly FS-1000 Adapter window appears:



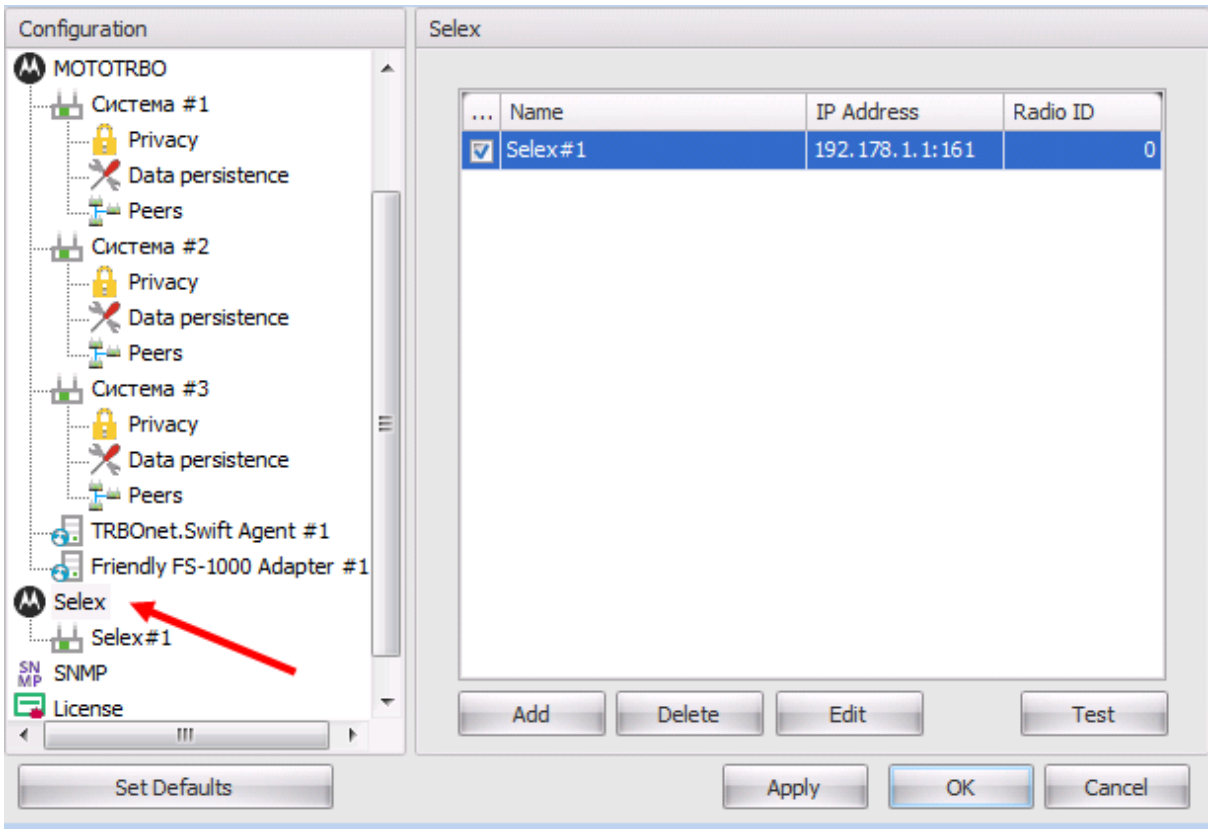
- **Name** - specify Friendly FS-1000 Adapter name to display in the Dispatcher Console.
- **IP Address** - select an IP Address of the new Friendly FS-1000 Adapter network interface.
- **Port** - specify port to connect to the new Friendly FS-1000 Adapter (8002 set by default). Click ''**Test**'' button to check the connection.

Selex

TRBOnet Watch supports monitoring of Selex repeaters.

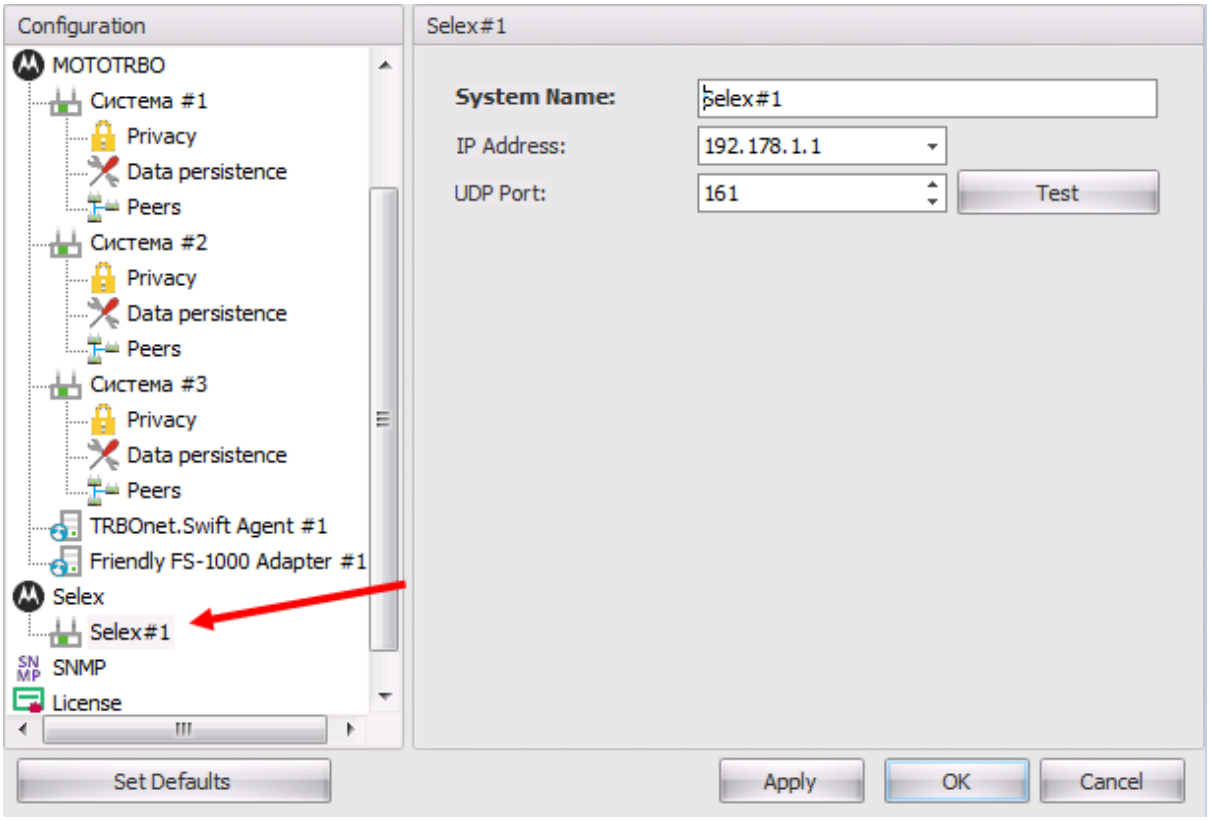
Add Selex Repeater

To add a repeater, go to **Selex** in the navigation tree:



Click ‘’**Add**’’ button to add a repeater.

New **Selex** repeater settings window appears:

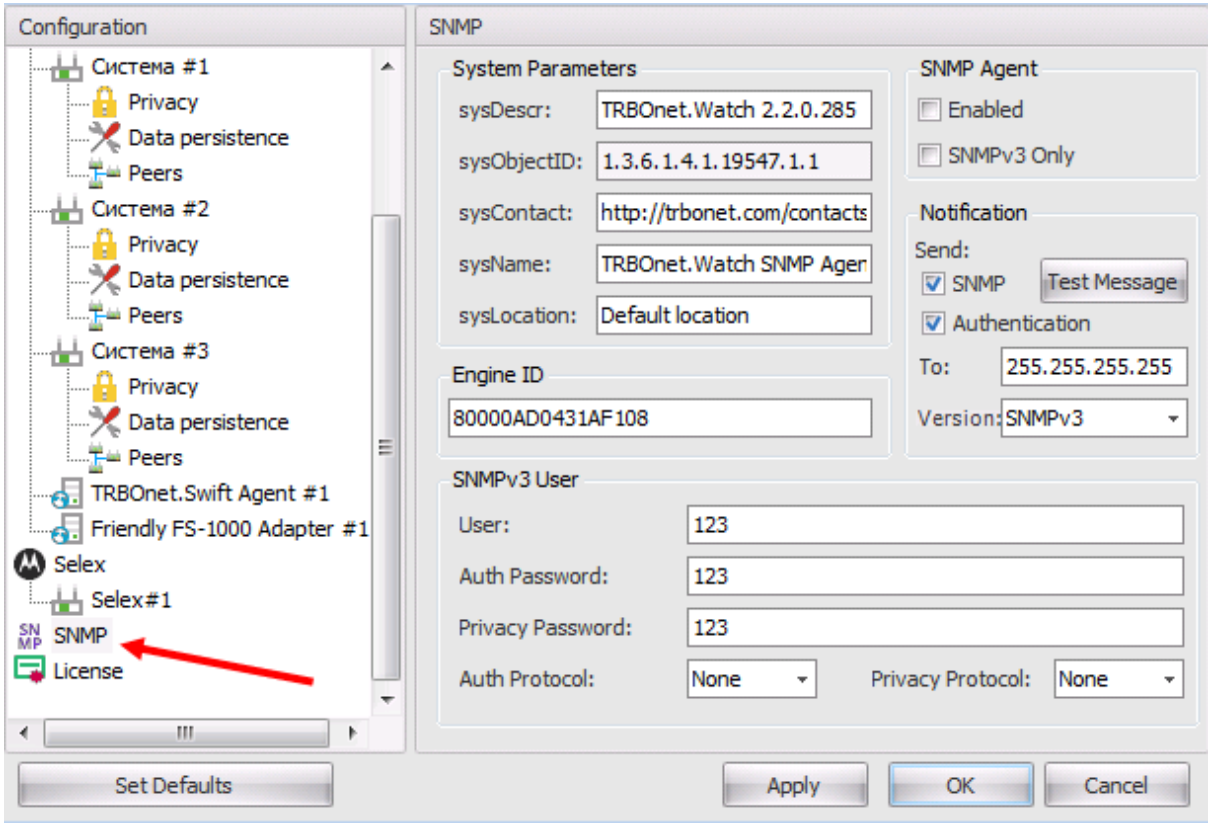


- **System Name** - specify a repeater's name in the system to display in Dispatch Console.
- **IP Address** - specify IP address of the repeater from its code plug.
- **UDP Port** - specify UDP port of Selex repeater to connect. Click ''**Test**'' button to check the connection to the repeater. A window will appear. In case of success it should show firmware version and serial number of the repeater.

SNMP (Simple Network Management Protocol)

Simple Network Management Protocol is a standard internet protocol to manage the devices in IP Networks on the basis of UDP/TCP architecture. In the TRBOnet Watch Server it is used to monitor the repeater states. SNMP settings specified in the TRBOnet Watch Server are then used in NMS.

To configure SNMP parameters select SNMP in the Navigation Tree:



All SNMP parameters see in the table below:

System Parameters	
sysDescr	Brief server description for its further identification in the SNMP Console (hereinafter, NMS).
sysObjectID	Personal server ID in the system (default).
sysContact	Contact details.
sysName	TRBOnet Watch Server name that will be shown in the NMS.
sysLocation	Information on current location of the server.
Engine ID (only for SNMPv3)	ID used for data encryption and identification in the NMS.
SNMP Agent	
Enabled	Check to activate SNMP mode.
SNMPv.3 Only	Check to use SNMPv.3 (this version of the SNMP uses the data encryption when it is requested by the NMS).
Notification Send:	
SNMP	Check to send the notifications to the NMS.
Test Message	Sending test system message about blocking of the access to the server's data in the NMS application.
Authentication	For SNMPv3 only. Sets additional security settings.
To	IP Address of the recipient.
Version	select the protocol version: SNMPv2 or SNMPv3.
SNMPv3 User (Only for SNMPv3)	
User	Specify user name to logon the NMS.
Auth password	Specify the password to logon the NMS.
Conf. password	Specify additional password for privacy. The system will request this password first. After that you need to specify the User and Auth. password.
Auth Protocol	Type of the authentication protocol.
Privacy protocol	Type of the privacy protocol.

TRBOnet Watch Server uses a certain set of the MIB files. These files should be loaded to the NMS:

- ns_00_INET-ADDRESS-MIB.mib
- ns_01_CISCO-SMI.mib
- ns_02_CISCO-TC.mib
- ns_03_RMON-MIB.mib
- ns_04_TOKEN-RING-RMON-MIB.mib
- ns_05_SNMP-FRAMEWORK-MIB.mib
- ns_06_RMON2-MIB.mib
- ns_07_ENTITY-MIB.mib
- ns_08_CISCO-ENTITY-ALARM-MIB.mib
- ns_09_ALARM-MIB[rfc3877].mib
- ns_10_NEOCOM-SMI.MIB
- ns_11_NEOCOM-PRODUCTS-MIB.MIB

Almost full compatibility with CISCO ENTITY-MIB and CISCO-ENTITY-ALARM-MIB is realized (08-09 files). These Mibs and all references (00-07 files) contained in the MIB\Common folder. NEOCOM-PRODUCTS-MIB describes TRBOnet Watch and determines the extent to which ENTITY-MIB and CISCO-ENTITY-ALARM-MIB are realized for version if the product. The numbers in the file names indicate the compilation order in Management Console (here and further examples will be used by CastleRock SNMPc NMS Computing).

ENTITY-MIB contains information for managing physical entities on the system. It also organizes the entities into a containment tree that depicts their hierarchy and relationship to each other. The MIB supports the following tables:–The entPhysicalTable describes each physical component (entity) in the system. The table contains an entry for the top-level entity (the master repeaters) and for each entity connected to master (hardware peers, applications, etc.). Each entry provides information about that entity: its name, type, vendor, and a description, and describes how the entity fits into the hierarchy of system entities.

CISCO-ENTITY-ALARM-MIB provides the information concerning all the alarm types in the system:

- Monitor when alarms are asserted and cleared.
- Obtain alarm history information.
- Track alarm statistics and counts.
- Generate SNMP traps and syslog messages in response to alarms.

Main Objects of Interest for TRBOnet Watch

- entPhysicalTable

Oid: 1.3.6.1.2.1.47.1.1.1

The Physical Entity (Overall System Topology) Table.

Defined in module ENTITY-MIB.

- ceAlarmDescrMapTable

Oid: 1.3.6.1.4.1.9.9.138.1.1.1

A mapping between an alarm description and a vendor type.

Defined in module CISCO-ENTITY-ALARM-MIB.

- ceAlarmDescrTable

Oid: 1.3.6.1.4.1.9.9.138.1.1.2

Alarm Description Table.

Defined in module CISCO-ENTITY-ALARM-MIB.

- ceAlarmTable

Oid: 1.3.6.1.4.1.9.9.138.1.2.5

Alarm control and status information related to the corresponding physical entity, including a list of those alarms currently being asserted by that physical entity.

Defined in module CISCO-ENTITY-ALARM-MIB.

- ceAlarmHistTableOid: 1.3.6.1.4.1.9.9.138.1.3.3

This table contains a history of ceAlarmIndicate and ceAlarmClear traps generated by the agent. Defined in module CISCO-ENTITY-ALARM-MIB.

Generated Notifications List:

- ceAlarmAsserted (Alarm Enabled)

Oid: 1.3.6.1.4.1.9.9.138.2.0.1

Defined in module CISCO-ENTITY-ALARM-MIB

- ceAlarmCleared (Alarm Disabled)

Oid: 1.3.6.1.4.1.9.9.138.2.0.2

Defined in module CISCO-ENTITY-ALARM-MIB

- entConfigChange (Generated when entPhysicalTable modified)

Oid: 1.3.6.1.2.1.47.2.0.1

Defined in module ENTITY-MIB

- warmStart (standard notification when launching the program)

Alarm Overview

Each alarm contains the following information:

- Alarm type - unique code that identifies the alarm
- Severity - the seriousness of the condition causing the alarm
- Description - information about the condition that caused the alarm

Alarm States

An alarm's state indicates the current state of the condition that caused the alarm:

- Asserted - the condition currently exists.
- Cleared - the condition has been resolved.

The severity of alarm indicates condition type that alarm represents:

- Critical (1) - a severe, service-affecting condition requiring immediate corrective action.
- Major (2) - a hardware or software condition that causes a serious disruption of service, or is on hardware essential to the operation of the system. Although less serious than a critical alarm, a major alarm requires immediate attention to correct the problem.
- Minor (3) - a condition or problem that does not affect service, or is on nonessential hardware.
- Info (4) - the information message concerning the event that improves operation, or the indication of a condition that could cause a problem.

Interpreting Alarm Information in the CISCO-ENTITY-ALARM-MIB

To obtain information about system alarms from the CISCO-ENTITY-ALARM-MIB, do the following:

- Step 1: to determine if any alarms are currently being asserted, read the values of the objects in ceAlarmTable. Each entry in the table contains information about the alarms currently being asserted by each physical entity. Each entry is indexed by the entPhysicalIndex (ENTITY-MIB) of the entity.
- Step 2: to obtain information about individual alarms, read the values of the ceAlarmDescrSeverity and ceAlarmDescrText objects.

TRBOnet Watch alarm hex-codes:

RxAlarm = 0x02,

Receiver_EEPROM_Corruption_Type_1 = 0x0C,

Receiver_EEPROM_Corruption_Type_2 = 0x0D,

Receiver_EEPROM_Corruption_Type_3 = 0x0E,

RxRevision = 0x28,

TxAlarm = 0x01,

FanAlarm = 0x05,

PA_EEPROM_Corruption_Type_1 = 0x06,

PA_EEPROM_Corruption_Type_2 = 0x07,

PA_EEPROM_Corruption_Type_3 = 0x08,

PA_Revision = 0x26,

Exciter_EEPROM_Corruption_Type_1 = 0x09,

Exciter_EEPROM_Corruption_Type_2 = 0x0A,

Exciter_EEPROM_Corruption_Type_3 = 0x0B,

Exciter_Revision = 0x27,

Transmitter_Power_Minor_Alarm_2db = 0x15,

Transmitter_Power_Minor_Alarm_3db = 0x16,

Transmitter_Power_Major_Alarm_3db = 0x17,

PA_Gain_Alarm = 0x24,

Exciter_Final_Amp_Alarm = 0x20,

Exciter_Driver_Amp_Alarm = 0x1F,

RF_Power_Control_Alarm = 0x23,

Reference_Incompatibility = 0x1E,

Interoperability_Between_Exciter_and_PA = 0x18,

AC_Power_Alarm = 0x04,

PA_Voltage_Minor_Alarm = 0x11,

PA_Voltage_Major_Alarm = 0x12,

PA_Voltage_Alarm_High = 0x10,

Volt_8_Supply_Alarm = 0x21,

Volt_10_Supply_Alarm = 0x22,

Incorrect_Carrier_Frequency = 0x19,

Incorrect_Codeplug_for_MTR2000_PA = 0x1A,

Temp_Alarm = 0x03,

VSWR_Minor_Alarm = 0x13,

VSWR_Major_Alarm = 0x14,

Ext_Circulator_Temp = 0x25,

PeerDisconnected = 0x107

Examples of the activation of the **SNMP** mode using **CastleRock SNMP NMS** see http://www.castlerock.com/products/snmpc/

1. Installing custom MIBs in the **SNMP** Management Console.

   - Copy to the **...\SNMPc Network Manager\mibfiles** folder all files from MIB folder (files should have the .mib extension).

   - Start the console and in the main menu choose **Config->gt.Mib Database....**

   - In the dialog window click Add and choose necessary files from the list and click **OK**.

   - Recompile console MIB database by pressing Compile.

2. Adding **TRBOnet Watch** in the list of console monitoring entities

   - Choose **Insert->gt.Map Objects->gt.Device...** in the main menu.

   - In the dialog window specify IP-Address and Name for TRBOnet Watch and click **OK**.

3. Configuring **SNMPv3 Protocol** with the authentication and confidentiality

   - In **Root Subnet** choose **Watch** object, click on it with the right mouse button and select **Properties**.

In the dialog window Access tab fill in the following fields:

- **Read Access Mode**: SNMP V3 Priv-DES Auth-MD5

- **Read/Write Access Mode**: SNMP V3 Priv-DES Auth-MD5

- **V3 Engineid**: введите значение, указанное в конфигурации приложения TRBOnet Watch (значение по умолчанию 80000AD0431AF108)

- **V3 Auth/Prive Security Name, V3 Auth Passwd, V3 Priv Passwd** - set the SNMPv3 user settings that are selected in the TRBOnet Watch Server configuration and click **OK**.

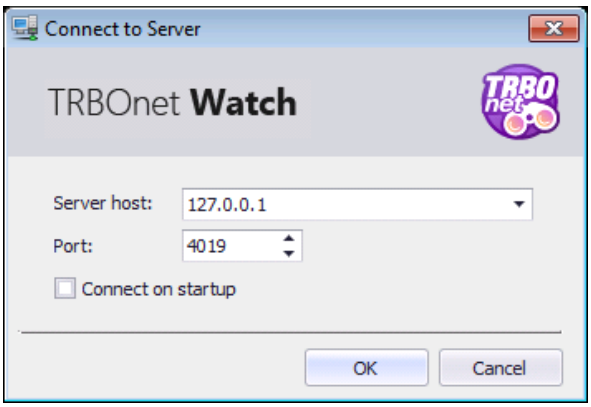
4. How to read a list of alarms from a **ceAlarmList** (ceAlarmTable, Oid: 1.3.6.1.4.1.9.9.138.1.2.5.1.3)

This line consists of 32 bytes in hexadecimal format. Type of alarm is encoded by ordinal bit.
The encoding line may look like this:
00 00 00 00 00 00 00 00 00 00 00 00 08 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
I.e. 13 * 8 + 3(00001000) = 107 (Peer Disconnected Alarm).
Other types of alarms are defined similarly. If no alarms are set, the line will have zero length.

TRBOnet Watch Dispatch Console

Launch TRBOnet Watch Dispatch Console using the shortcut on your desktop.

Type in your credentials to connect to Dispatch Console:

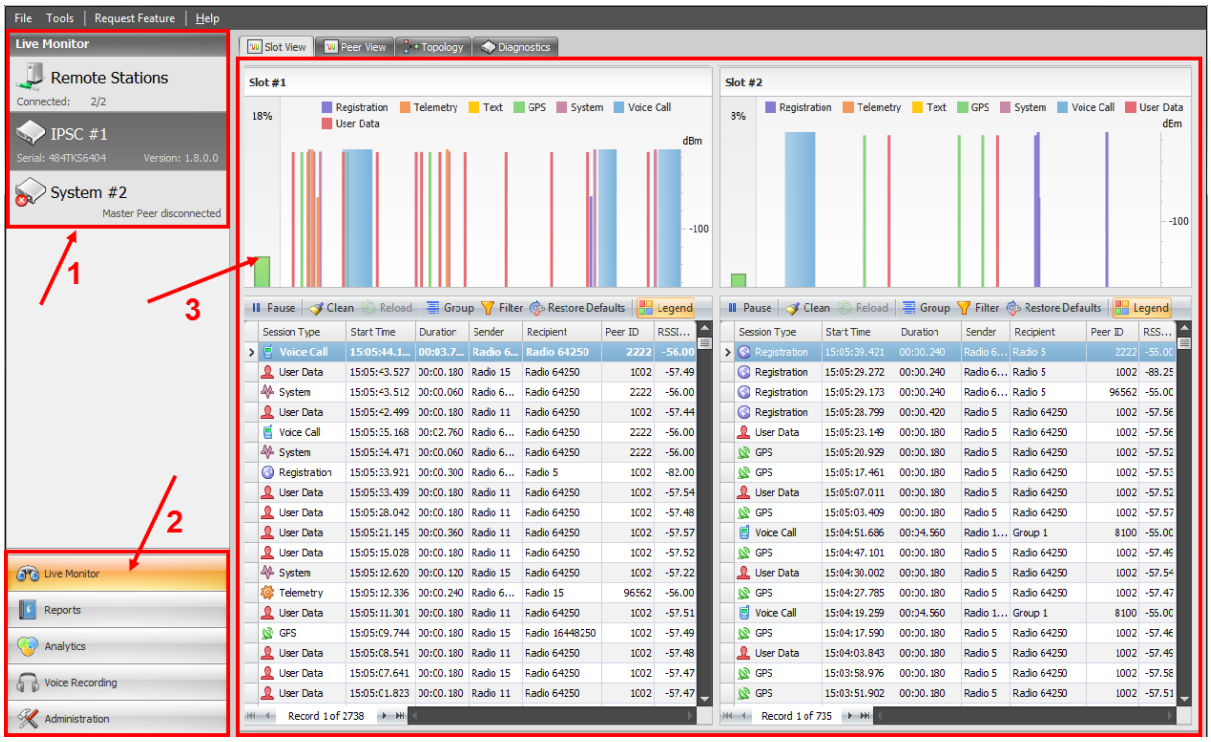


Connect to:

- **Server Host –** select the TRBOnet Watch server in the dropdown list or specify its IP Address.
- **Port –** specify command port of TRBOnet Watch (4019 set by default). *For more details on Command port settings see* *Configure Network Parameters* section.

Check the box **Connect on startup** for automatic login to TRBOnet Watch Server without password prompting next time.

When Dispatch Console is running, it connects to TRBOnet Watch Server and by default the Live Monitor screen is displayed:



1 – Objects list. Allows select an object for monitoring in the list.

2 – Navigation Tree. Allows toggle between monitoring modes.

3 – Monitoring window. Displays monitoring results.

Dispatch Console Menu

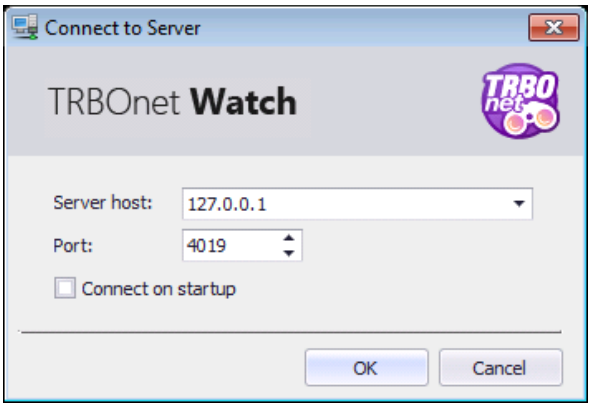
Dispatch Console menu allows to manage the main Dispatch Console options. It can be found in the upper part of TRBOnet Watch Console.

File

Select **File Menu** to connect to another TRBOnet Watch server or to use other credentials. Also, print and exit from TRBOnet Watch Dispatch Console options are available:

1. Connect to TRBOnet Watch Server.

Select **File**, **Connect to Server** and set the connection parameters:



Connect to:

- **Server Host –** select the TRBOnet Watch server in the dropdown list or specify its IP Address.
- **Port –** specify command port of TRBOnet Watch (4019 set by default). *For more details on Command port settings see* Configure Network Parameters section.

Check the box **Connect on startup** for automatic login to TRBOnet Watch Server without password prompting next time.

Click ''**OK**'' to connect to a Dispatch Console.

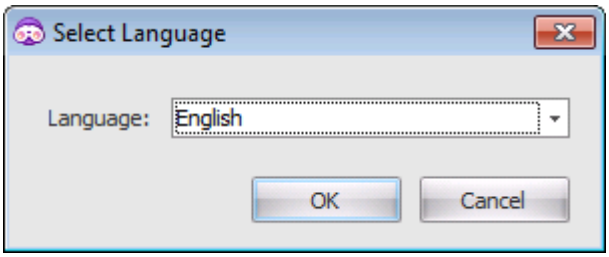
2. **Print** – custom development.
3. **Print Preview** – custom development.
4. **Exit**. Select **File** > **Exit** to exit the Dispatch Console.

Tools

Select **Tools** menu to manage the Dispatch Console:

1. **Language.**

   Select **Language** to change Dispatch Console's language:

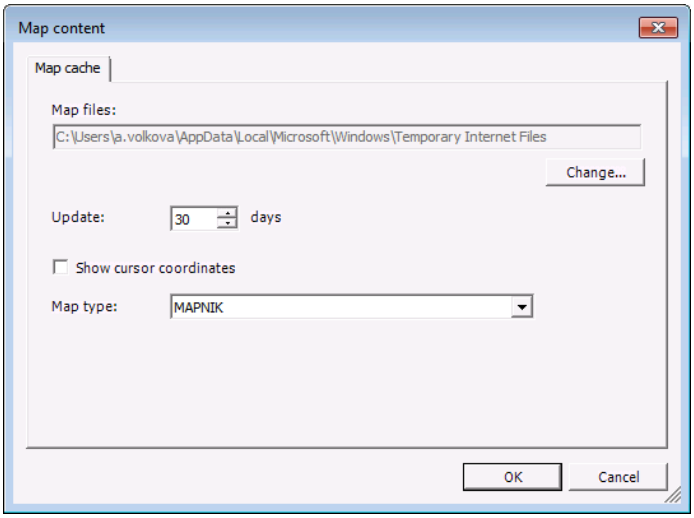


Select language in the dropdown list and click ''**OK**''.

The changes will apply with the next launch of console.

2. **Map Content**.

   Select to specify the folder and settings to store Map Data:



- **Map Files** – click ''**Change**'' button to select the folder on the PC to store the Map Data.
- **Update** – select data updating period.

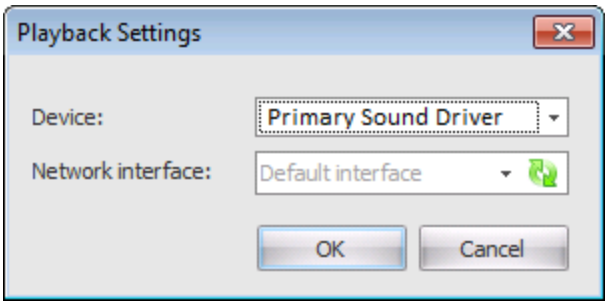
Note: when ''0''value selected, the map will not update.

- **Show cursor coordinates** – select to view cursor coordinates in the popup window on map.
- **Map Type** – select your Map type in the dropdown list. *For more details on maps used in TRBOnet Watch see* Appendix A: Supported Map Types.

Click ''**OK**'' to save map cache settings.

3. **Audio Settings**.

Select to set playback device and network interface:



- **Device** – select playback device in the dropdown list.
- **Network interface** – in case you have a number of network cards on your PC, select required network card in the dropdown list.

Request Feature

Select to send a message to TRBOnet technical support engineers.

Help

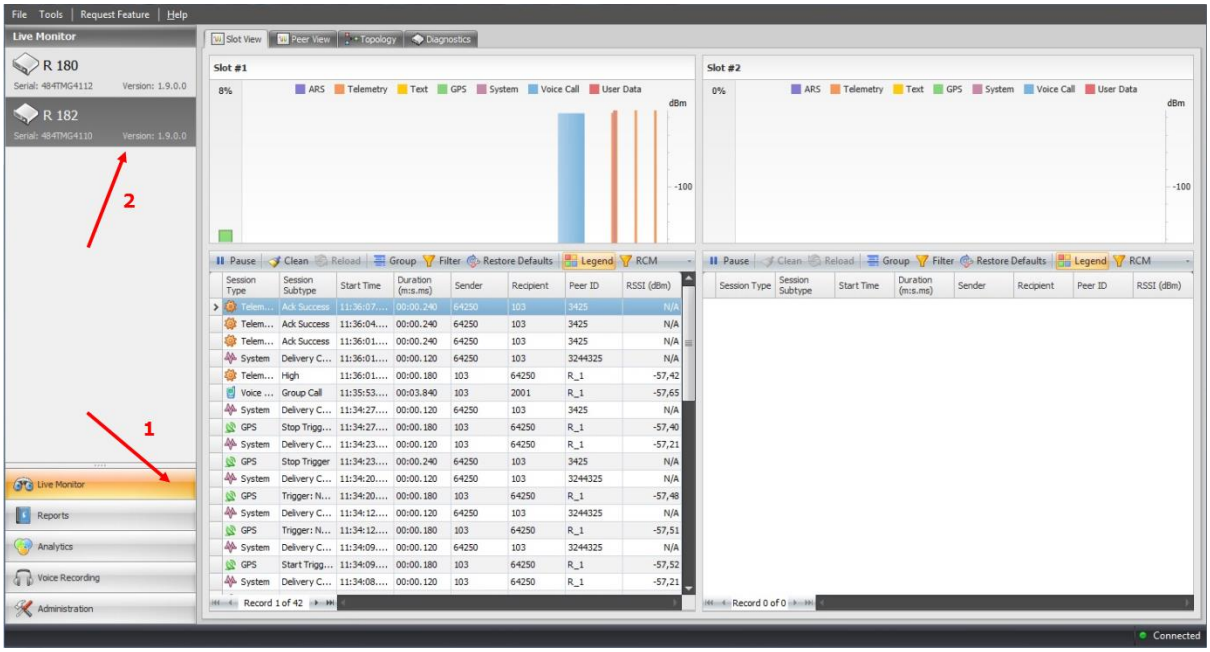
About – click to see your TRBOnet Watch info.

Repeater Monitoring

TRBOnet Watch provides fully-functioned monitoring of repeaters, registered in the system.

Live Monitor

The **Live Monitor** interface (1) provides online monitoring, analyzing and filtering of all voice and data traffic on **IP Site Connect** and **Capacity Plus** systems.

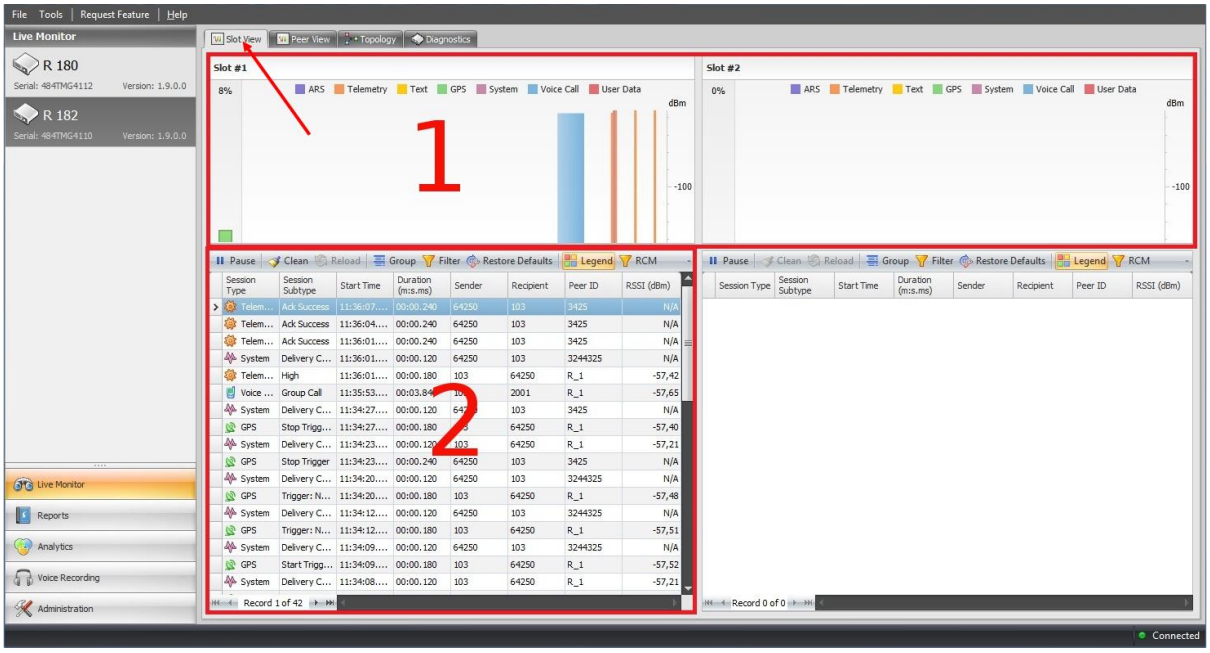


To view the system, select it in the Objects List (2).

The **Live Monitor** interface shows the activity of the radio stations and repeaters in real time.

Slot View

Slot View tab is available for **IP Site Connect** systems only. It displays the information from all peers in two slots windows. The data is presented on the diagram and in the table.



1 - **Diagram**

The diagram shows the all radios activity of the slot for the last minute. The data packages (Voice, GPS, ARS, etc.) received by TRBOnet Watch Server are marked with different colors due to their type. There are the workload scale on the left of the diagram and RSSI level scale (in dBm) on the right.

2 - **Table**

The table shows the data from all the slots of the selected system:

- **Session Type**
- **Session Subtype**
- **Start Time**
- **Duration**
- **Sender**
- **Recipient**
- **Peer ID**
- **RSSI (dBm)**

Toolbar

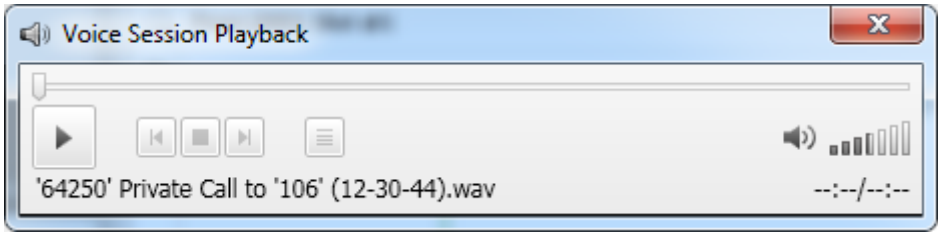
Dispatcher can manage table data using table controls:

1. Click Pause to pause the monitoring. Click "**Run**" to start the monitoring.
2. Click Clean to hide the Event Log records. Click Reload to show all Event Log records.
3. Click Group button to group log records. Select column you want to group log records by. Drag and drop selected column header in the **Grouping** field.
4. Click Filter to filter the data by a column. Type the data - criterion of filtering under the column header. To exit the filter mode click Filter again.
5. Click Restore Defaults to apply default settings to the Event log records.
6. Click Legend to show or hide the legend (color icons of the diagram).
7. Click RCM to view the messages sent by repeater via RCM protocol. These messages appear in the Event Log as System Messages to show the current state of the repeater. To exit RCM mode click RCM again. To learn more about RCM see Diagnostics section.

CALL TRANSMISSION STATUS	
Race Condition Failure	Simultaneous being on the air with another subscriber.
Invalid/Prohibited Call Failure	Incorrect or forbidden format.
Destination Slot Busy Failure	Receiving slot is occupied.
Subscriber Destination Busy Failure	Subscriber is not available.
All Channels Busy Failure	All channels are busy.
Other Unknown Call Failure	Broadcast of the calls into the air is intermitted.
Signal Interference Failure	Interference in the radio network.
CWID in Progress Failure	Repeater is broadcasting CWID beacon.
TOT Expiry Premature Call End Failure	The timer of transmitting duration limit has gone off.
Transmit Interrupted Call Failure	Forced interruption.
Higher Priority Call Takeover Failure	The call is over because of higher priority call.
Other Unknown Call Failure	The reason is unknown.

RCM REPEAT BLOCKED INDICATION	
Start of Signal Interference (FCC Type I)	Signal interference is strong enough and begins blocking repeat (FCC Type I).
End of Signal Interference (FCC Type I)	Signal interference is weak enough and repeater resumes over the air repeat (FCC Type I).
Start of Signal Interference (FCC Type II)	Signal interference is strong enough and begins blocking repeat (FCC Type II).
End of Signal Interference (FCC Type II)	Signal interference is weak enough and repeater resumes over the air repeat (FCC Type II).
Start of CWID/BSI Repeat	The repeater has to transmit CWID/BSI and begins blocking repeat.
End of CWID/BSI Repeat	Broadcast of the calls into the air is intermitted.
Signal Interference Failure	The repeater finishes CWID/BSI transmission and resumes over-the-air-repeat.

8. Click Play to play a Voice Call (available for Voice Calls only). The following Player window appears:

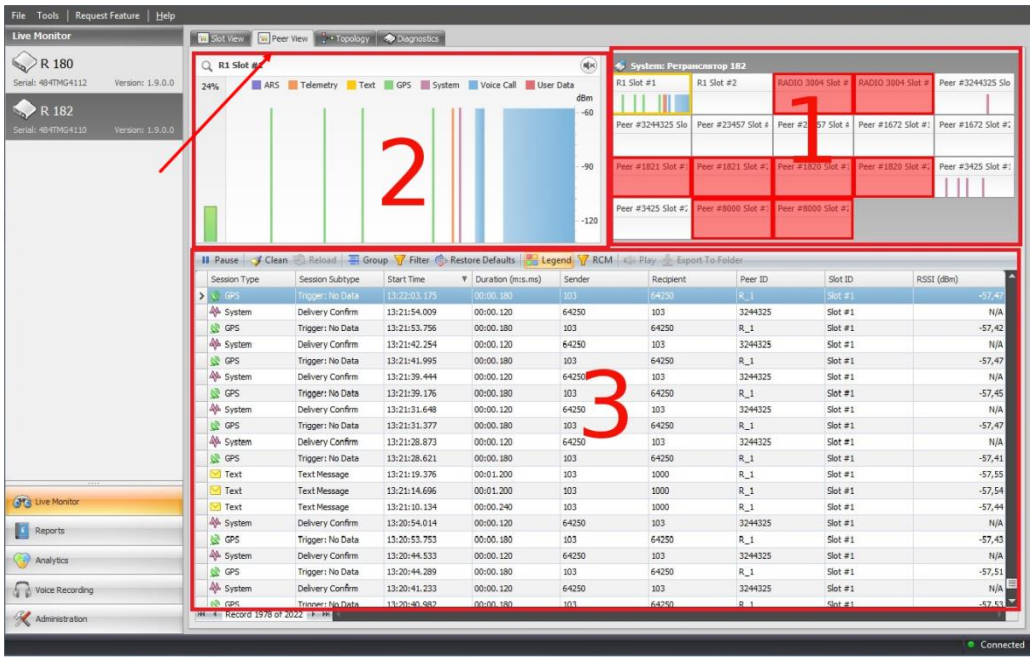


9. Click Export To Folder button to export the voice recordings. Select the folder to export voice recording files as **.wav** file.

Note: You may select dimensions of the diagram/table. Click on the board of the diagram/table and move it to set appropriate dimensions.

Peer View

Peer View tab is available both for **Capacity Plus** systems and for **IP Site Connect** systems. It shows all the slots in the selected system. Select the system in the Objects List.



1 - **List of slots**. Shows all peers and slots. Click the slot to view the data on the diagram. If the peer loses connection with the server the slots turn red.

2 - **Diagram**. Shows radios activity in real time. The data packages (Voice, GPS, ARS, etc.) that TRBOnet Watch Server receives are marked with different colors due to their type. There are the workload scale on the left of the diagram and RSSI level scale (in dBm) on the right. You may listen to Voice Calls of the selected slot in real time mode. Select the slot in the list of slots. Click icon on the right of the diagram.

Note: If you select another slot in the list of slots, this function will be turned off automatically.

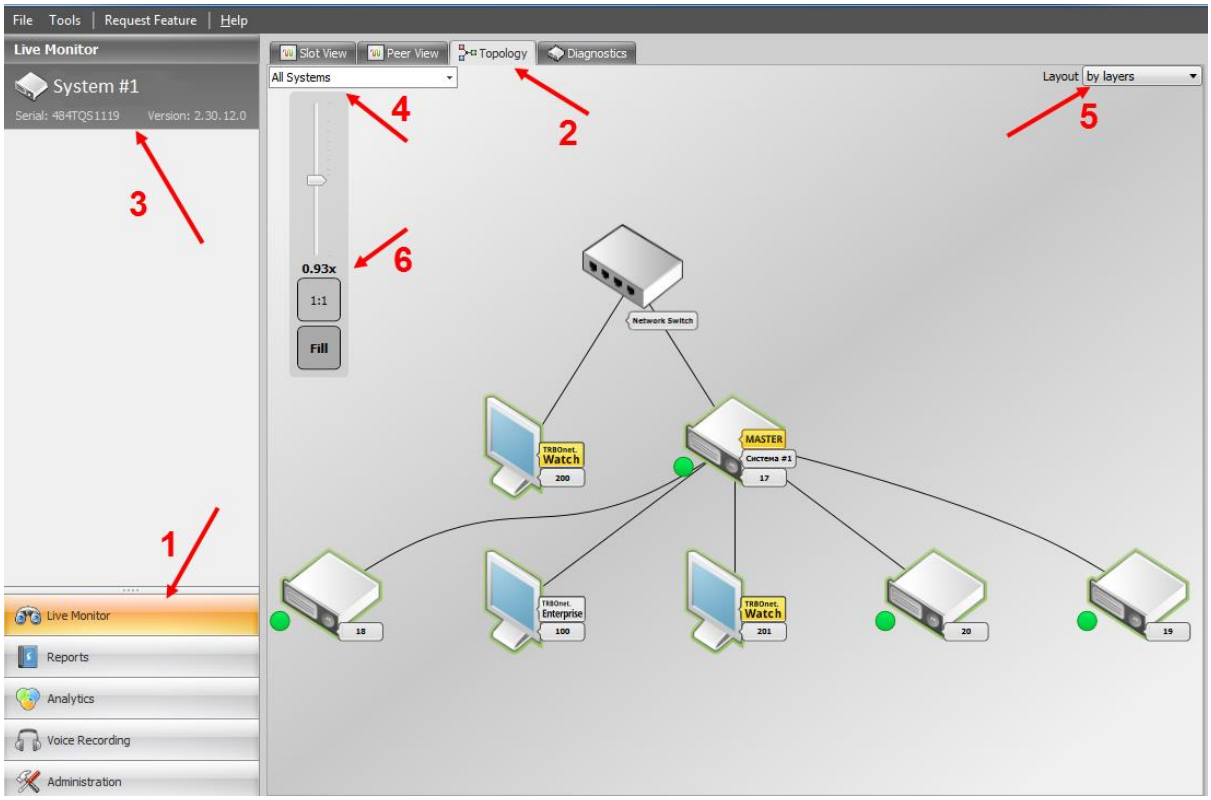
3 - **Table**. Shows data of all the slots of selected system:

- **Session Type**
- **Session Subtype**
- **Start Time**
- **Duration**
- **Sender**
- **Recipient**
- **Peer ID**
- **RSSI (dBm)**

Dispatcher can manage table data using table controls. For more details see Toolbar section.

Topology

The **Topology** tab displays selected system's topology (Master, peers ID's and software peers connected to the Master). The system remembers all peers ever connected to the master. Go to **Live Monitor** (1) > **Topology** (2). Select Repeater or TRBOnet Swift Agent in the **Objects list** (3).



4 – Select system to display topology. The default topology displays all repeaters and remote control stations (TRBOnet Swift Agent) registered in the system.

5 – Select layout type. Available types are Circle, By layers, By groups, Radial, Type 1, Type 2.

6 – Set Topology zoom. You may change it using the scroll wheel or zoom scale.

Click

icon to display full-scale topology.

Click

icon to display current Topology centrally.

Right-click the peer and select **Remove Peer from the Map** to delete selected peer. Right-click any peer and select **Remove All Disconnected Peers** to delete all disconnected peers.

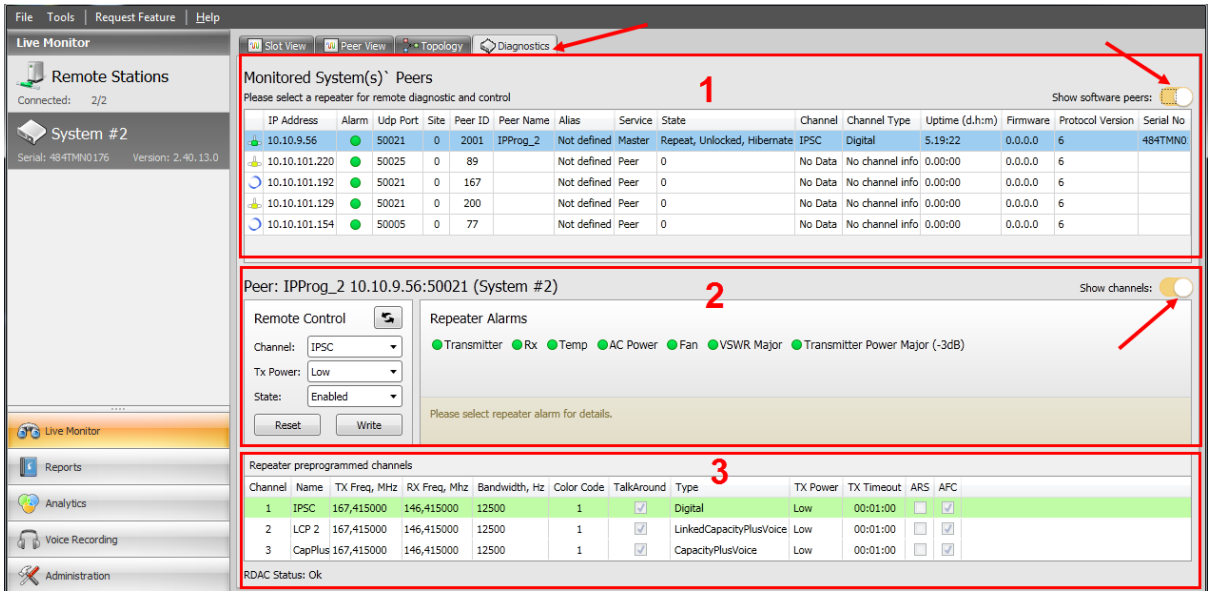
Click the peer to view the information popup window:

- **Peer Name**
- **Peer ID**
- **IP address**
- **Port Number**
- **Services**
- **Slot 1**
- **Slot 2**

Every peer has icons with Peer ID and Type of the system.

Diagnostics

Diagnostics tab allows to monitor repeaters' state and gather real-time repeaters hardware failure reports via alarm messages sent by repeater. Also, Dispatcher can manage some repeater parameters (e.g., Write TX Power and Status to the repeater).


File Tools | Request Feature | Help
Live Monitor
Remote Stations
Connected: 2/2
System #2
Serial: 484TMN0176 Version: 2.40.13.0
Slot View
Peer View
Topology
Diagnostics
Monitored System(s)` Peers
Please select a repeater for remote diagnostic and control
1
Show software peers:
IP Address Alarm Udp Port Site Peer ID Peer Name Alias Service State Channel Channel Type Uptime (d.h:m) Firmware Protocol Version Serial No
10.10.9.56 50021 0 2001 IPProg_2 Not defined Master Repeat, Unlocked, Hibernate IPSC Digital 5.19:22 0.0.0.0 6 484TMN0
10.10.101.220 50025 0 89 Not defined Peer 0 No Data No channel info 0.00:00 0.0.0.0 6
10.10.101.192 50021 0 167 Not defined Peer 0 No Data No channel info 0.00:00 0.0.0.0 6
10.10.101.129 50021 0 200 Not defined Peer 0 No Data No channel info 0.00:00 0.0.0.0 6
10.10.101.154 50005 0 77 Not defined Peer 0 No Data No channel info 0.00:00 0.0.0.0 6
Peer: IPProg_2 10.10.9.56:50021 (System #2)
2
Show channels:
Remote Control
Channel: IPSC
Tx Power: Low
State: Enabled
Reset
Write
Repeater Alarms
Transmitter Rx Temp AC Power Fan VSWR Major Transmitter Power Major (-3dB)
Please select repeater alarm for details.
Live Monitor
Reports
Analytics
Voice Recording
Administration
Repeater preprogrammed channels
3
Channel Name TX Freq, MHz RX Freq, Mhz Bandwidth, Hz Color Code TalkAround Type TX Power TX Timeout ARS AFC
1 IPSC 167,415000 146,415000 12500 1 Digital Low 00:01:00
2 LCP 2 167,415000 146,415000 12500 1 LinkedCapacityPlusVoice Low 00:01:00
3 CapPlus 167,415000 146,415000 12500 1 CapacityPlusVoice Low 00:01:00
RDAC Status: Ok

1 – **Monitored System (s)' Peers** table. Allows Dispatcher to view advanced repeater parameters, e.g., Firmware and Protocol version etc. The icon shows peer state - connected.

- **Show software peers.** By default Dispatcher can see only Hardware peers' (repeaters) parameters on the **Diagnostics** tab. Click **Show software peers** to display all peers of all systems, including TRBOnet Watch connections.

2 – **Remote Control mode.** Allows Dispatcher to manage repeater parameters:

Remote Control	
Channel	Allows selecting the current channel of the repeater and allows switching to another preprogrammed one.
TX Power	Select **High** when a stronger signal is needed to extend transmission distances. Select **Low** to communicate in close proximity, and to prevent transmissions into other geographical groups.
State	Select **Enabled** to allow repeater to transmit, receive and repeat operations. Select **Disabled** to forbid repeater to transmit, receive or repeat. In the Disabled mode repeater responds to GPIO controls, such as channel steering and to alarms and diagnostics.
Repeater Alarms	Shows repeater parameters state. - Repeater alarm functions normally. Click the item for details.
Reset	Updates selected repeater parameters state.
Write	Saves repeater configuration.
	Reloads repeater configuration.

- **Show channels** – shows repeater preprogrammed channels table.

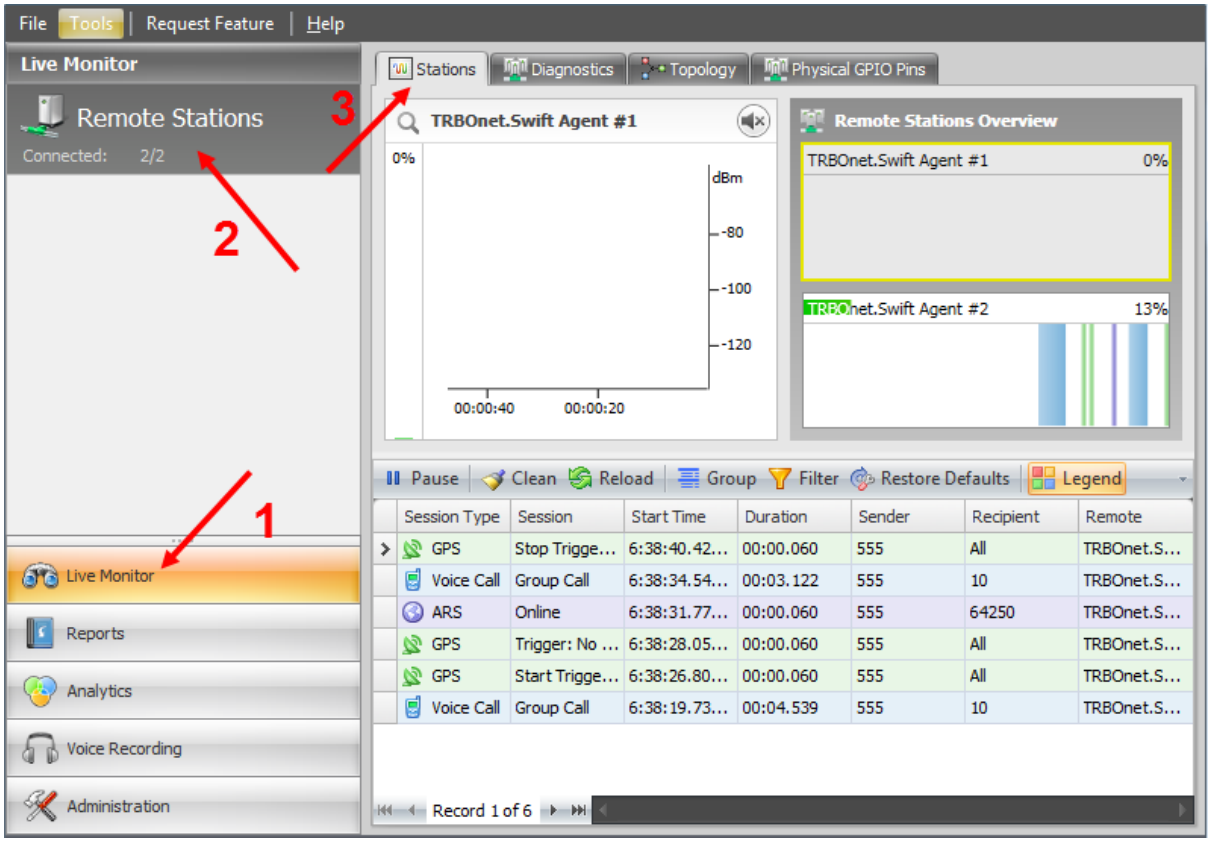
3 – **Repeater preprogrammed channels**. Shows channels set in repeater codeplug with advanced parameters (e.g., Bandwidth, TX Timeout, etc.). Indicates selected channel with green color. Dispatcher can change repeater's channel configuration parameters (Channel, TX Power, State) using Remote Control mode.

TRBOnet Swift Agent Monitoring

TRBOnet Watch provides fully-functional monitoring of Swift Agents, configured in Server Configurator.

Stations

Stations tab displays all voice and data traffic via TRBOnet Swift Agent. Go to **Live Monitor** (1) > select **Remote Stations** in the Objects List (2) > **Stations** tab (3):

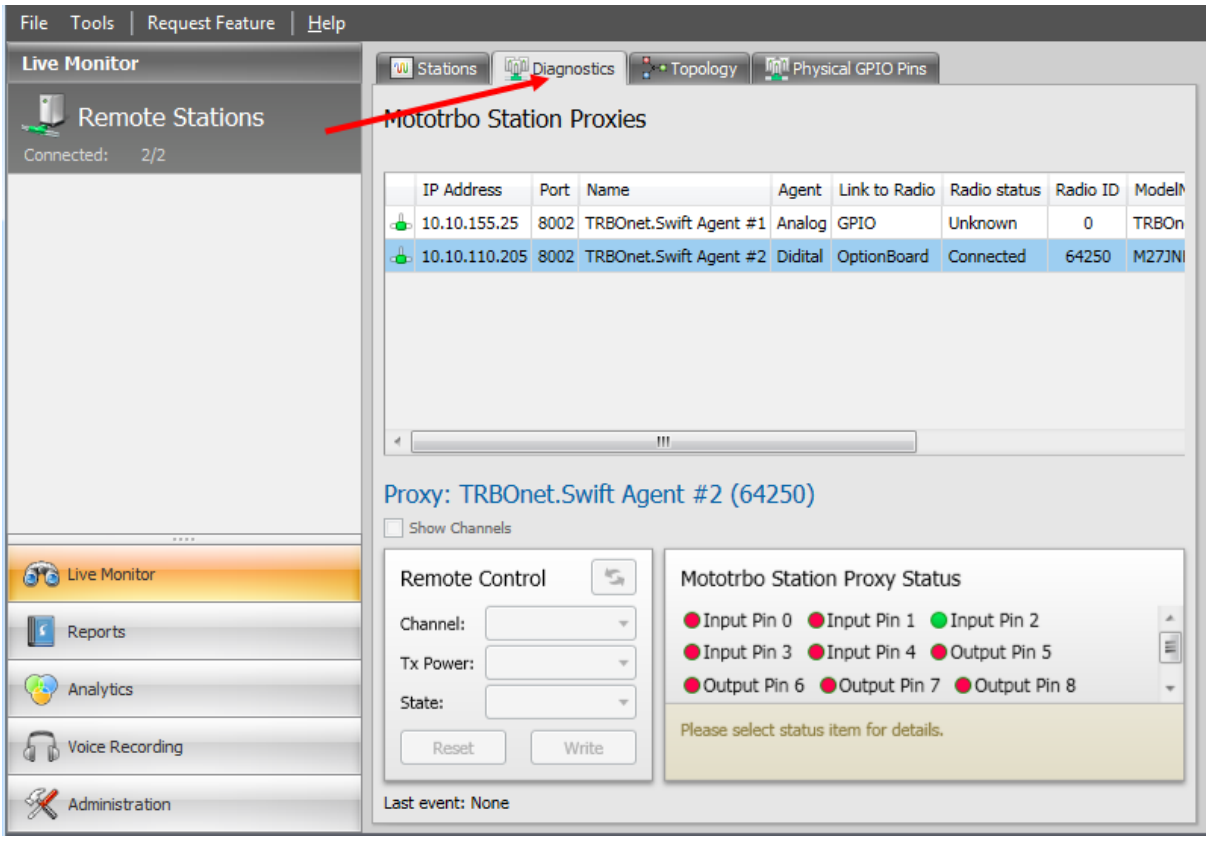


The **Stations** tab shows the activity of the radio stations and connected Swift Agents in real time.

Dispatcher can manage table data using table controls. For more details see Toolbar section.

Diagnostics

On the **Diagnostics** tab Dispatcher can see connected TRBOnet Swift Agent properties and monitor the status of TRBOnet Swift Agents and gather real-time hardware failure reports via alarm messages sent by agent.



- **Mototrbo Station Proxies**. In the table Dispatcher can view current state of connected TRBOnet Swift Agent.

Show channel and **Remote Control** mode are unavailable for TRBOnet Swift Agent.

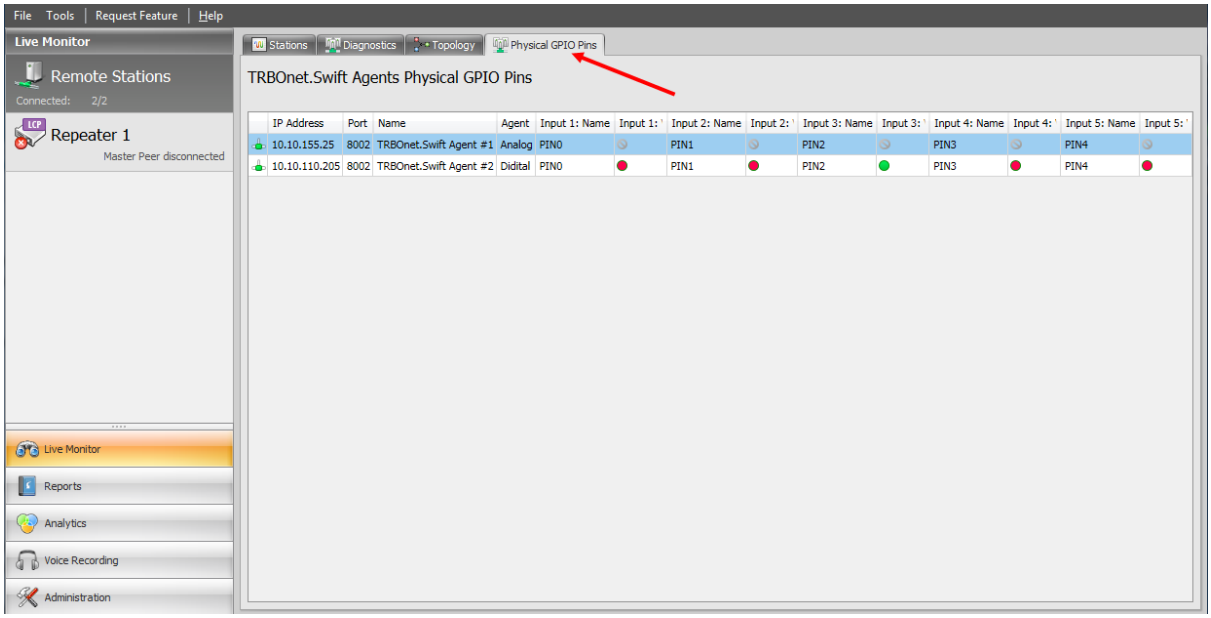
- **Mototrbo Station Proxy Status** - displays current device PINs state.

Topology

For more details see Topology section.

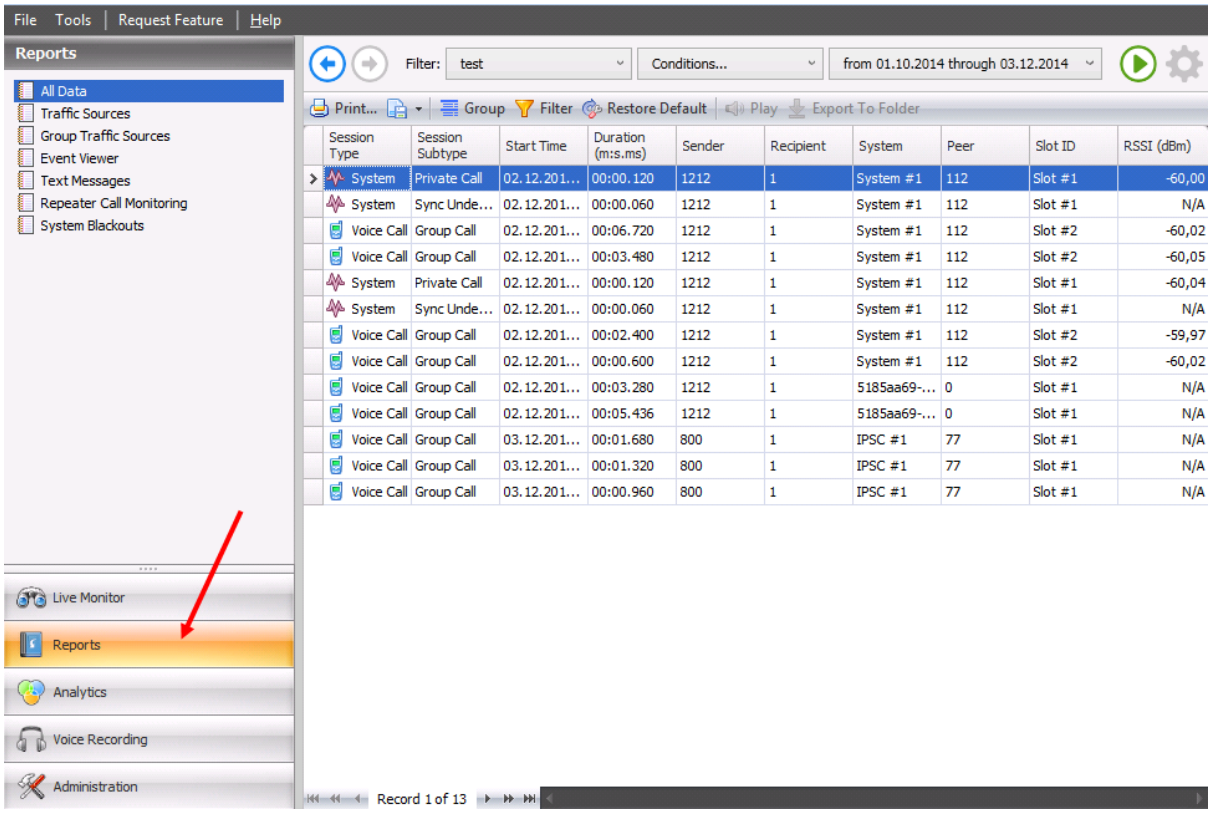
Physical GPIO Pins

Go to **Physical GPIO Pins** tab to view current TRBOnet Swift Agent Pins state.



Reports

Reports tool provides various printing forms of monitored radio network activity data reports:


File Tools | Request Feature | Help
Reports
All Data
Traffic Sources
Group Traffic Sources
Event Viewer
Text Messages
Repeater Call Monitoring
System Blackouts
Filter: test
Conditions...
from 01.10.2014 through 03.12.2014
Print... Group Filter Restore Default Play Export To Folder
Session Type | Session Subtype | Start Time | Duration (m:s.ms) | Sender | Recipient | System | Peer | Slot ID | RSSI (dBm)
System | Private Call | 02.12.201... | 00:00.120 | 1212 | 1 | System #1 | 112 | Slot #1 | -60,00
System | Sync Unde... | 02.12.201... | 00:00.060 | 1212 | 1 | System #1 | 112 | Slot #1 | N/A
Voice Call | Group Call | 02.12.201... | 00:06.720 | 1212 | 1 | System #1 | 112 | Slot #2 | -60,02
Voice Call | Group Call | 02.12.201... | 00:03.480 | 1212 | 1 | System #1 | 112 | Slot #2 | -60,05
System | Private Call | 02.12.201... | 00:00.120 | 1212 | 1 | System #1 | 112 | Slot #1 | -60,04
System | Sync Unde... | 02.12.201... | 00:00.060 | 1212 | 1 | System #1 | 112 | Slot #1 | N/A
Voice Call | Group Call | 02.12.201... | 00:02.400 | 1212 | 1 | System #1 | 112 | Slot #2 | -59,97
Voice Call | Group Call | 02.12.201... | 00:00.600 | 1212 | 1 | System #1 | 112 | Slot #2 | -60,02
Voice Call | Group Call | 02.12.201... | 00:03.280 | 1212 | 1 | 5185aa69-... | 0 | Slot #1 | N/A
Voice Call | Group Call | 02.12.201... | 00:05.436 | 1212 | 1 | 5185aa69-... | 0 | Slot #1 | N/A
Voice Call | Group Call | 03.12.201... | 00:01.680 | 800 | 1 | IPSC #1 | 77 | Slot #1 | N/A
Voice Call | Group Call | 03.12.201... | 00:01.320 | 800 | 1 | IPSC #1 | 77 | Slot #1 | N/A
Voice Call | Group Call | 03.12.201... | 00:00.960 | 800 | 1 | IPSC #1 | 77 | Slot #1 | N/A
Live Monitor
Reports
Analytics
Voice Recording
Administration
Record 1 of 13

Report Types Overview

TRBOnet Watch supports the following report types:

- **All Data report**. Shows all system data according to report filter.
- **Traffic Sources report.** Shows amount and duration of Voice Calls, GPS and ARS packages sorted by Radio ID according to report filter.
- **Group Traffic Sources report.** Shows amount and duration of Voice Calls sorted by Group ID according to report filter.
- **Event Viewer.** Shows all events with description sorted by system according to report filter.
- **Text Messages.** Shows all text messages with details according to report filter.
- **Repeater Call Monitoring.** Shows RCM messages with details according to report filter.

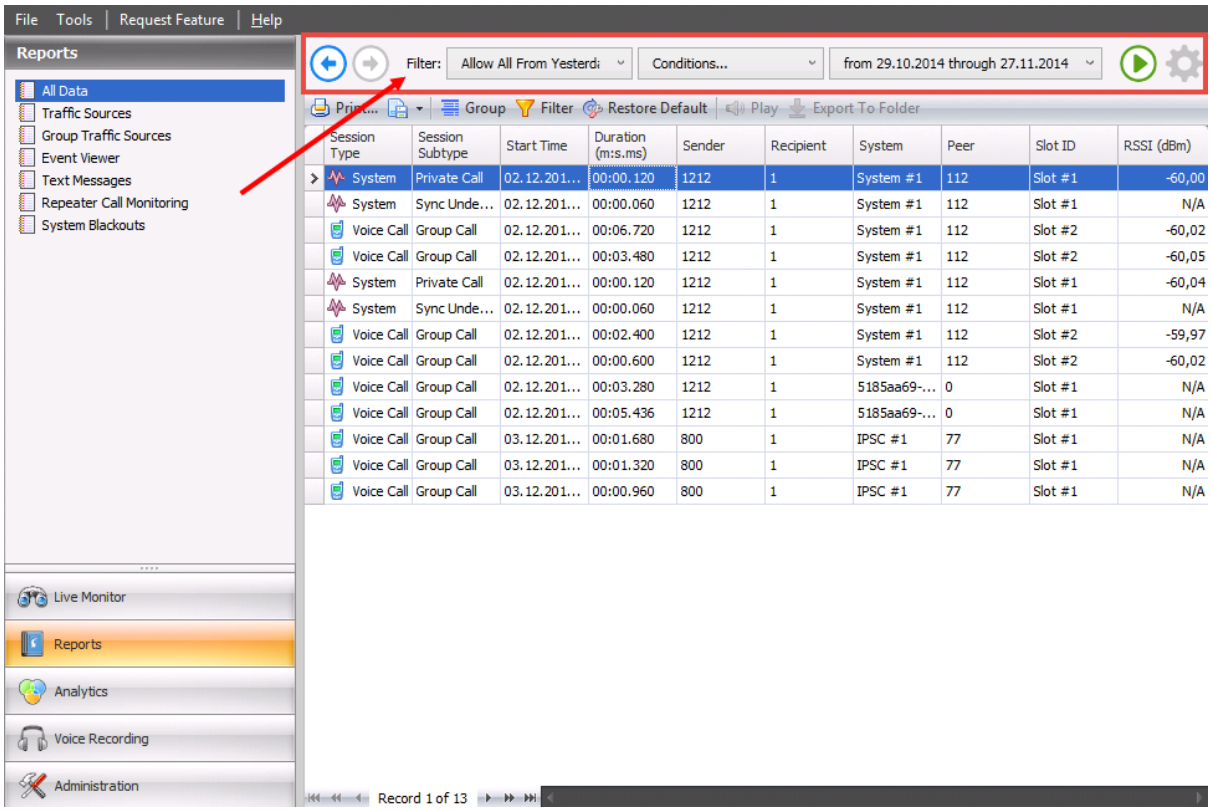
Note: enable **Store Repeater Control Messages (RCM)** option. For more details see Data Persistence section.

- **System Blackouts.** Shows system blackouts according to report filter. For more details on blackouts monitoring configuration see Data Persistence section.

Note: available for **Capacity Plus** systems only.

Creating Custom Report Filter

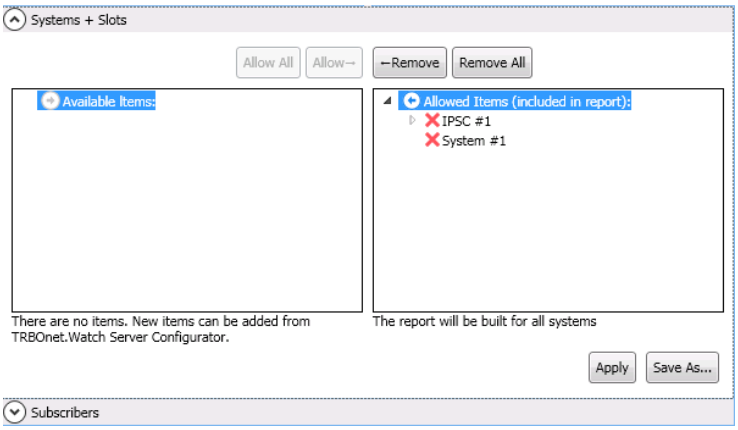
You can set custom filter to display report data and then save this filter.



- **Filter** – select default filter ''**Allow All from Yesterday**'' (shows the data from all registered systems and slots from yesterday) or select custom filter, which allows you to save each filter parameter (e.g. Range of Subscribers and Data Range and Time) as a profile and then apply it to the selected reports.

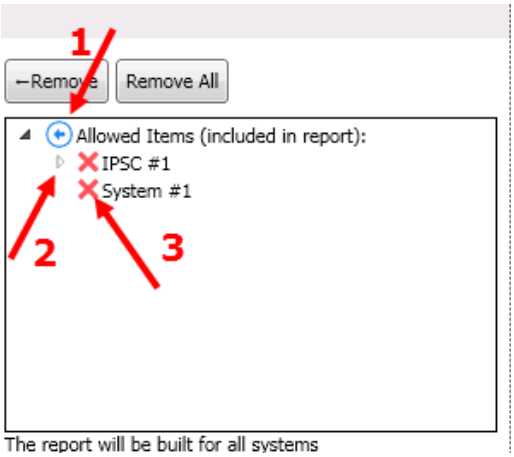
- **Conditions** – sets available system, slots and subscribers to include the selected report type.

The default view:



All systems are included in the report by default.

Right column controls:

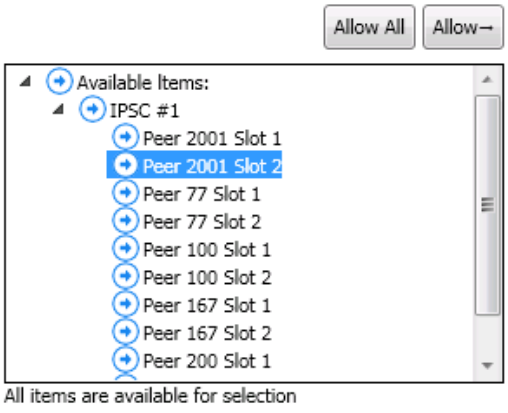


1 – Removes all items from the list to the left column. You can also click ''**Remove All**'' button.

2 – Maximizes allowed items view (shows peers).

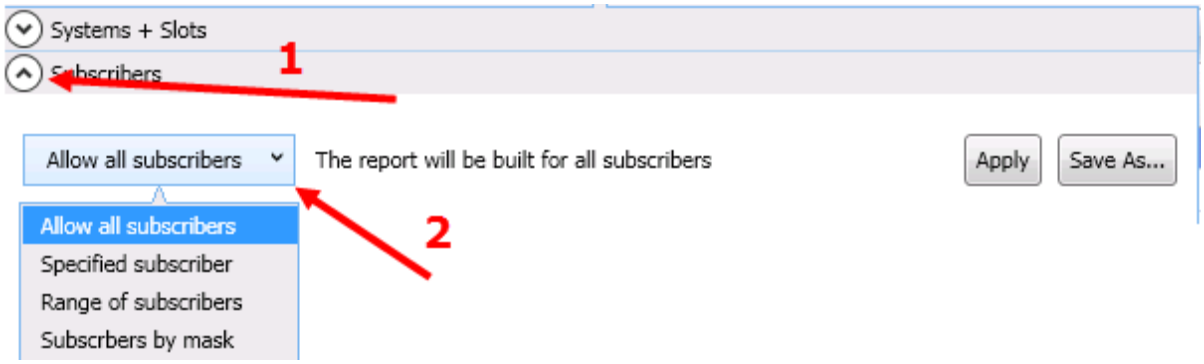
3 – Removes selected system from the list. You can also click ''**Remove**'' button.

You can select items to include in the report in the left column:



Select system or peer in the list and click button to add selected item in the report.

- **Subscribers** – allows filter the data from selected subscribers.



1 – Maximizes subscriber window.

2 – Maximizes subscribers' dropdown list.

- ✓ **Allow all subscribers** – select to include all subscribers' data to the report.
- ✓ **Specified subscribers** – Type in Subscriber ID to include selected subscriber data to the report.
- ✓ **Range of subscribers** – select subscribers range to include in the report.
- ✓ **Subscribers by mask** – Click Help button for more details.

- **Data Range** – allows to set time interval for the report. Select time interval criteria in the dropdown list (between, before or since) and select the date(s).
- **Data range + Time** – allows to set exact time period (date and time) for the report.

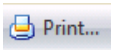
Click ''**Apply**'' button to apply selected filter parameters.

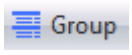
Click ''**Save as**'' button to save filter profile.

To generate report, click button.

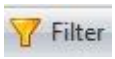
Toolbar

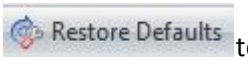
Dispatcher can manage table data using table controls:

1. Click 

button to print the selected report.
2. Click button to select the report format in the dropdown list.
3. Click 

button to group report data. Select column you want to group report data by. Drag and drop selected column header in the **Grouping** field.
4. Click

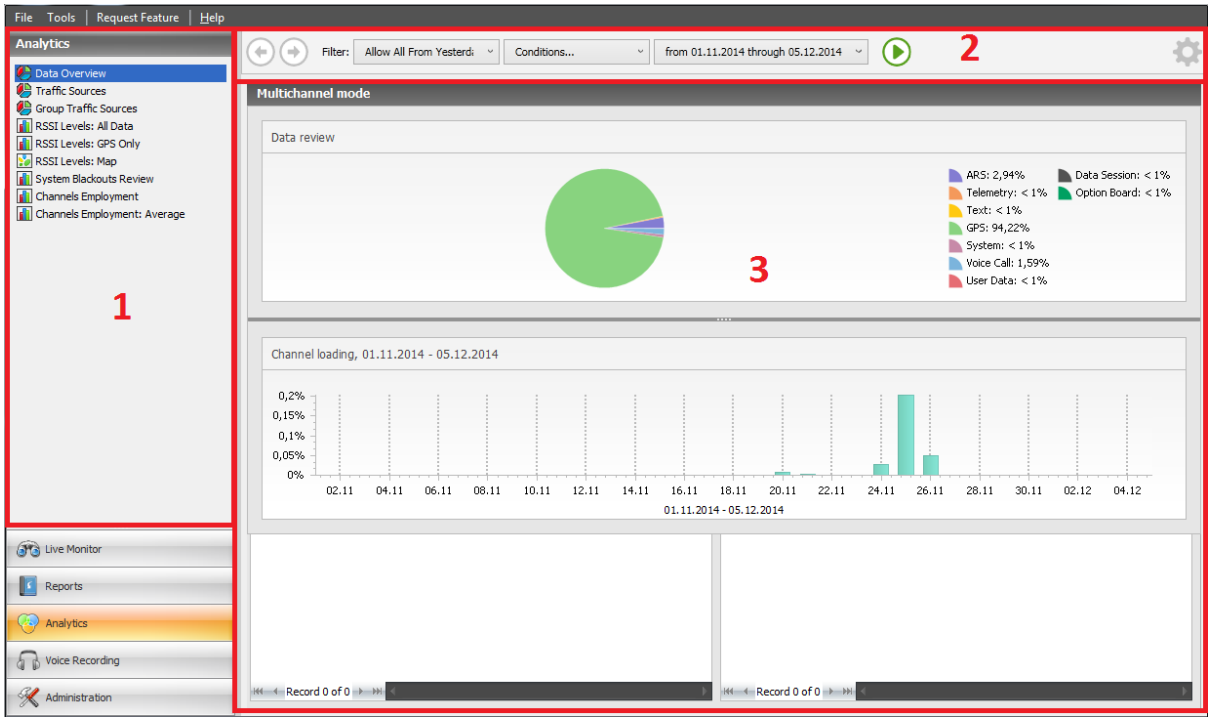
to filter the data by a column. Type the data - criterion of filtering under the column header. To exit the filter mode click 

again.
5. Click 

to apply default settings to the report data.

Analytics

The Analytics interface allows viewing and analyzing the system statistics.



1 – **Analytics Report Types**.

2 – **Filter and Settings**. Allows applying filters to selected statistic type.

Note: for RSSI analytics reports button available. For more details see RSSI Levels: All Data, RSSI Levels: GPS Only and RSSI Levels: Map sections.

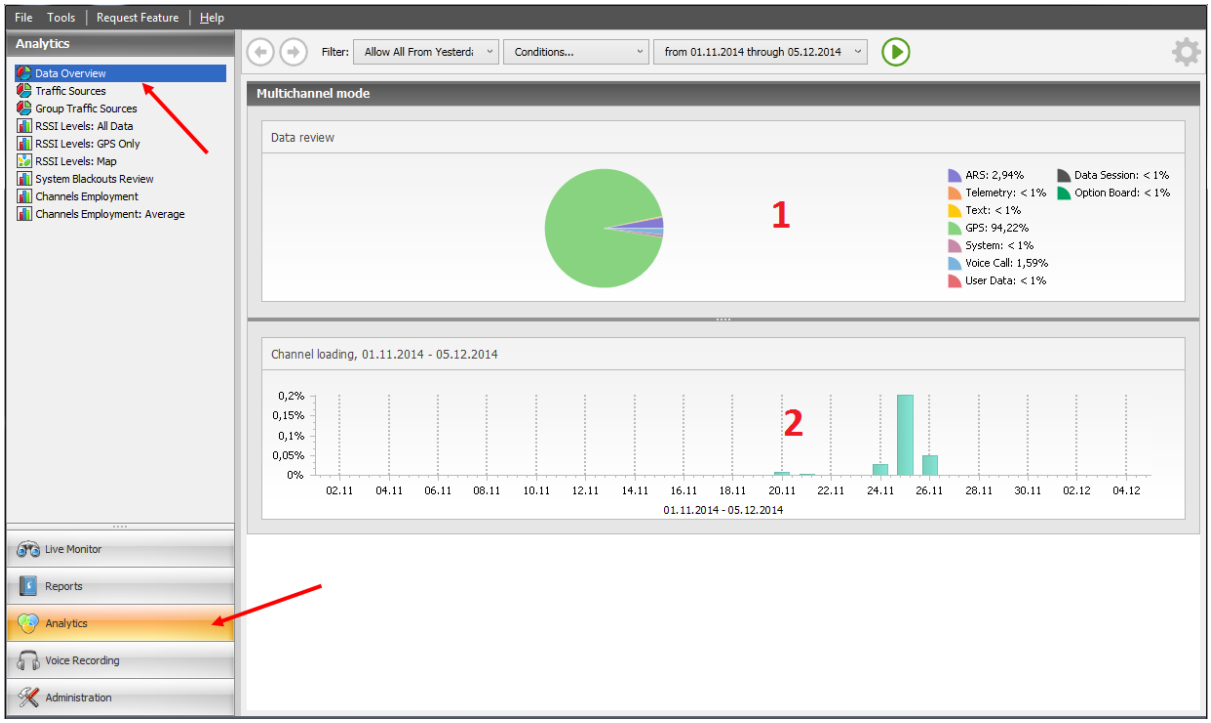
3 – **Analytics Main Window**. Allows viewing generated analytics reports.

Statistic Types

TRBOnet Watch supports different Analytic report types.

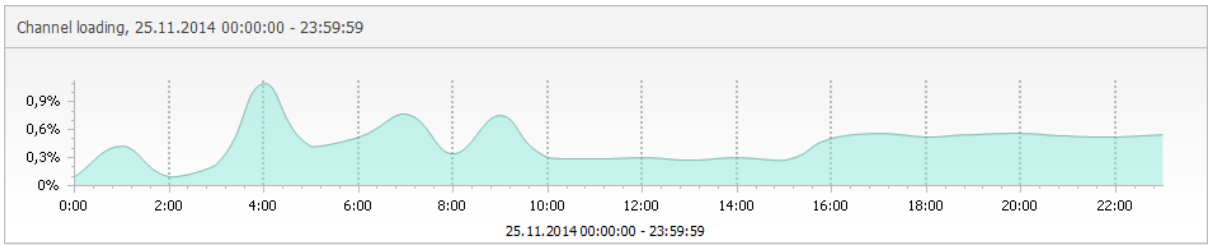
Data Overview

Shows details on traffic depending on data type (Voice, GPS, Registration, etc.) and channel loading by days and hours.



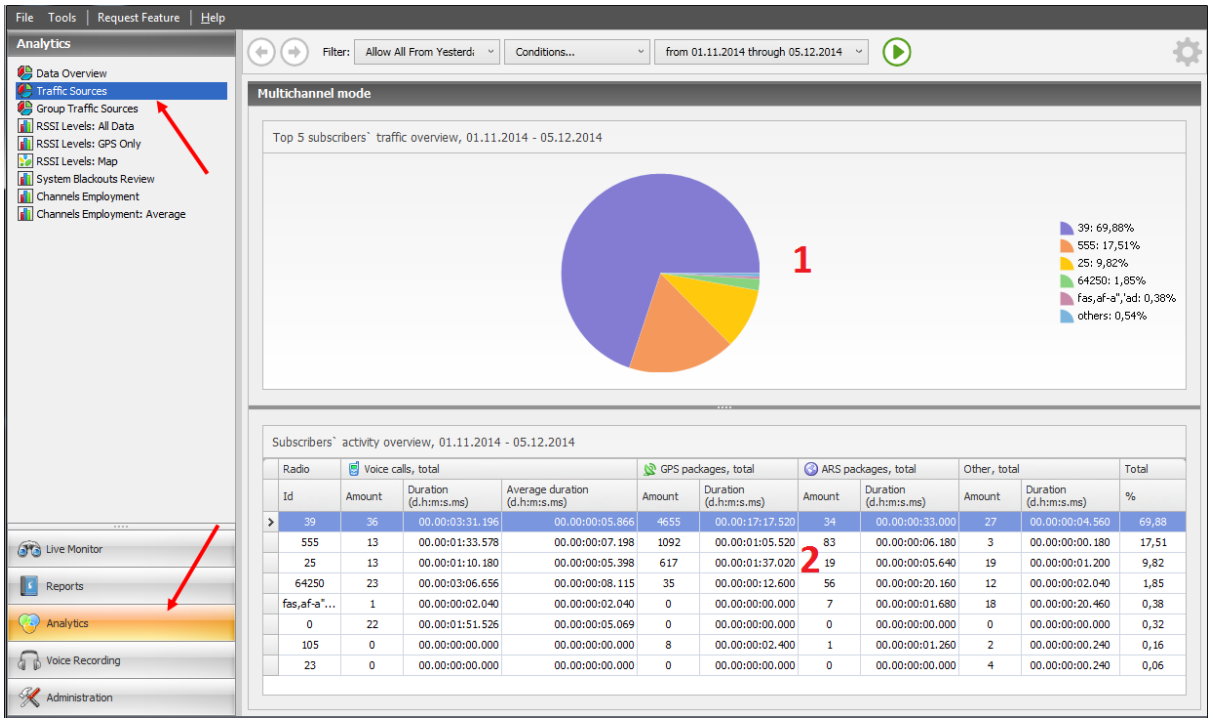
1 – **Data traffic diagram**. The x-axis represents time period, the y-axis represents channel loading value in %.

2 – **Channel loading schedule** for a selected time period. Click the selected day on the schedule to see the details per calendar day:



Traffic Sources

Shows details on traffic and subscribers' activity.



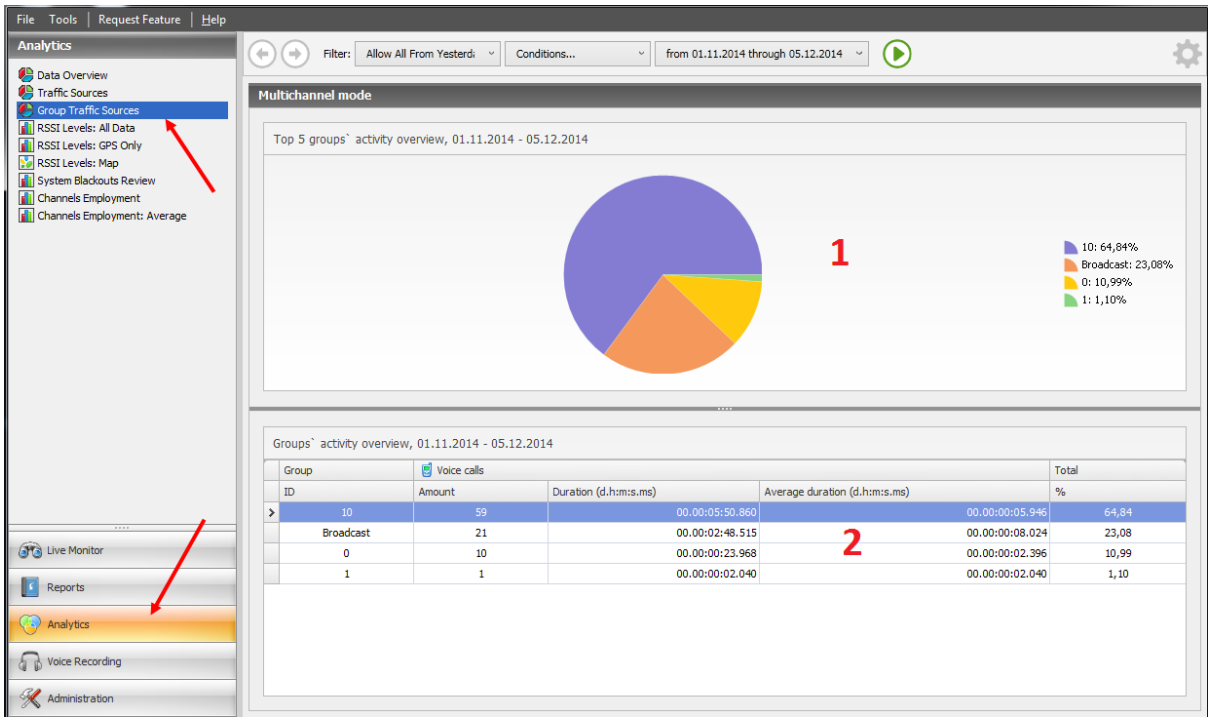
Radio	Voice calls, total			GPS packages, total		ARS packages, total		Other, total		Total
Id	Amount	Duration (d.h:m:s.ms)	Average duration (d.h:m:s.ms)	Amount	Duration (d.h:m:s.ms)	Amount	Duration (d.h:m:s.ms)	Amount	Duration (d.h:m:s.ms)	%
39	36	00.00:03:31.196	00.00:00:05.866	4655	00.00:17:17.520	34	00.00:00:33.000	27	00.00:00:04.560	69,88
555	13	00.00:01:33.578	00.00:00:07.198	1092	00.00:01:05.520	83	00.00:00:06.180	3	00.00:00:00.180	17,51
25	13	00.00:01:10.180	00.00:00:05.398	617	00.00:01:37.020	19	00.00:00:05.640	19	00.00:00:01.200	9,82
64250	23	00.00:03:06.656	00.00:00:08.115	35	00.00:00:12.600	56	00.00:00:20.160	12	00.00:00:02.040	1,85
fas,af-a"...	1	00.00:00:02.040	00.00:00:02.040	0	00.00:00:00.000	7	00.00:00:01.680	18	00.00:00:20.460	0,38
0	22	00.00:01:51.526	00.00:00:05.069	0	00.00:00:00.000	0	00.00:00:00.000	0	00.00:00:00.000	0,32
105	0	00.00:00:00.000	00.00:00:00.000	8	00.00:00:02.400	1	00.00:00:01.260	2	00.00:00:00.240	0,16
23	0	00.00:00:00.000	00.00:00:00.000	0	00.00:00:00.000	0	00.00:00:00.000	4	00.00:00:00.240	0,06

1 – **Traffic overview diagram**. Shows statistics for the "Top 5" system items. Left-click selected diagram sector for more details.

2 – **Subscribers activity table**. Shows amount and duration of voice calls, GPS and ARS packages and total activity according to selected filters.

Group Traffic Sources

Shows statistics on call types (group and broadcast calls) and voice traffic details for each group.



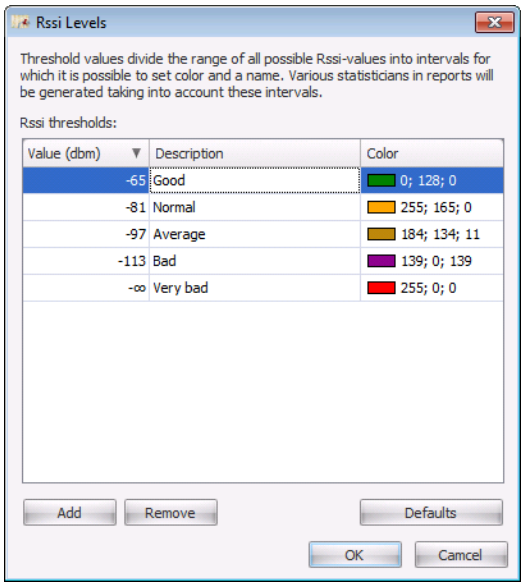
1 – **Groups activity overview diagram**. Shows statistics for the "Top 5" system items.

2 - **Groups activity table**. Shows amount and duration of voice calls according to selected filters.

RSSI Levels: All Data

RSSI - received signal strength indicator. Measures radio signal loss from one map point to another. RSSI map can be used by radio systems engineers to plan further radio network extension.

To generate the report set RSSI levels clicking button:


Rssi Levels
Threshold values divide the range of all possible Rssi-values into intervals for which it is possible to set color and a name. Various statisticians in reports will be generated taking into account these intervals.
Rssi thresholds:
Value (dbm)
Description
Color
-65 Good 0; 128; 0
-81 Normal 255; 165; 0
-97 Average 184; 134; 11
-113 Bad 139; 0; 139
-∞ Very bad 255; 0; 0
Add
Remove
Defaults
OK
Camcel

Specify values, add description and select color for RSSI level.

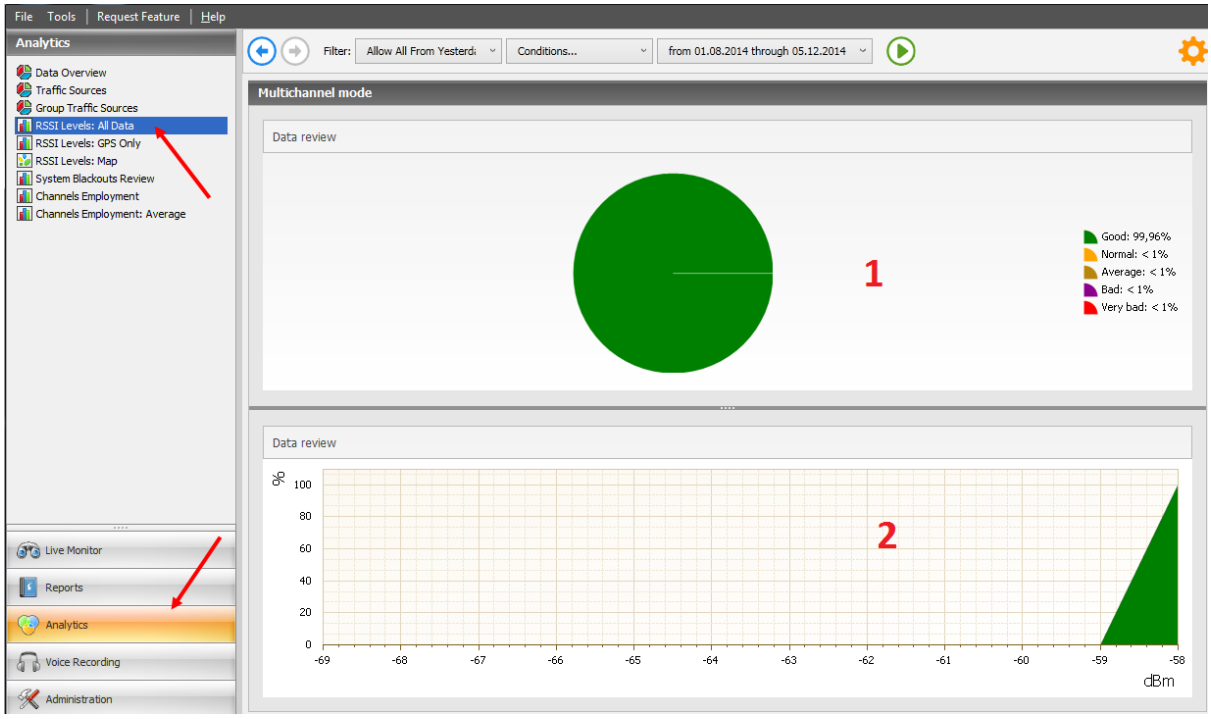
Click ‘’**Add**’’ button to add new RSSI level.

Click ‘’**Remove**’’ to remove selected RSSI level from the list.

Click ‘’**Defaults**’’ button to apply default settings.

Click ‘’**OK**’’ to save changes.

The report generates automatically.



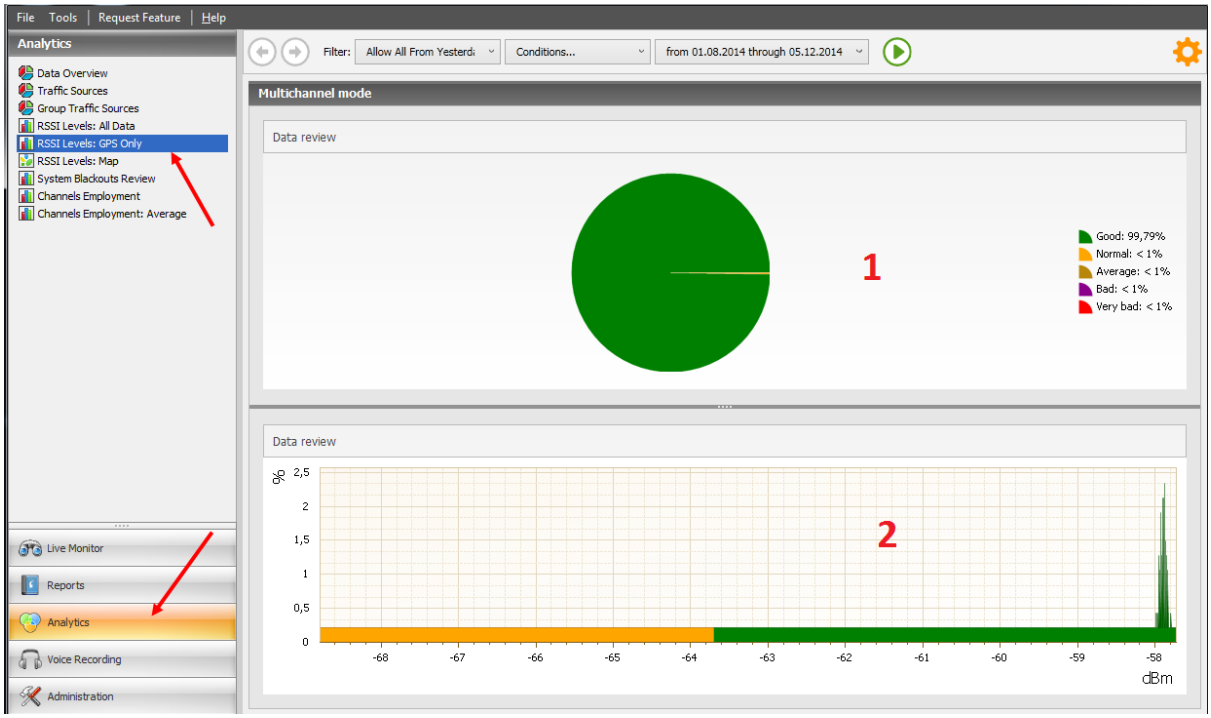
1 – **RSSI data review diagram**.

2 – **RSSI data review graph**.

RSSI Levels: GPS Only

Shows statistics on GPS RSSI levels.

To set RSSI level, see RSSI Levels: All Data section.



1 – **RSSI data review diagram**.

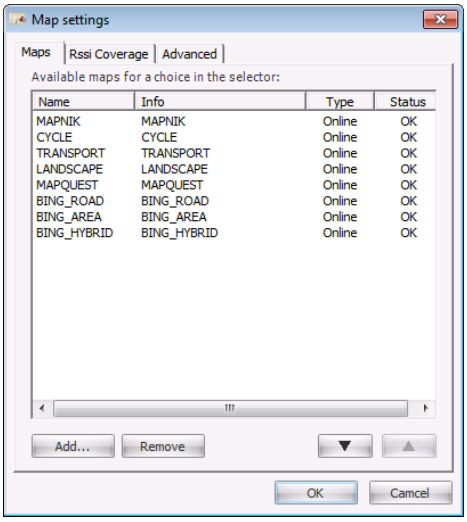
2 – **RSSI data review graph**.

RSSI Levels: Map

Shows statistics on RSSI levels on map.

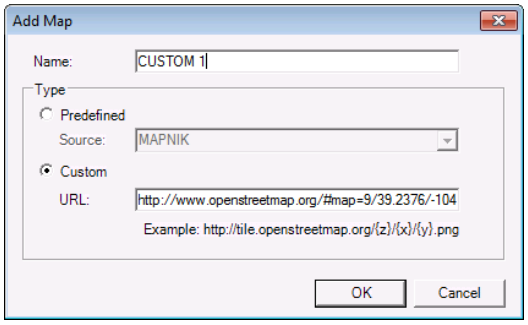
Click button to set RSSI levels.

1. On the **Maps** tab you can select map in the list or add custom map:



Select map in the list to add one of supported maps.

Click ''**Add**'' button and select ''**Add Online Map**'' to add predefined or custom online map:



- **Name** – add name for new map.
- **Type** – select **Predefined** to add an online map from the dropdown list. Select **Custom** to add an online map by URL.

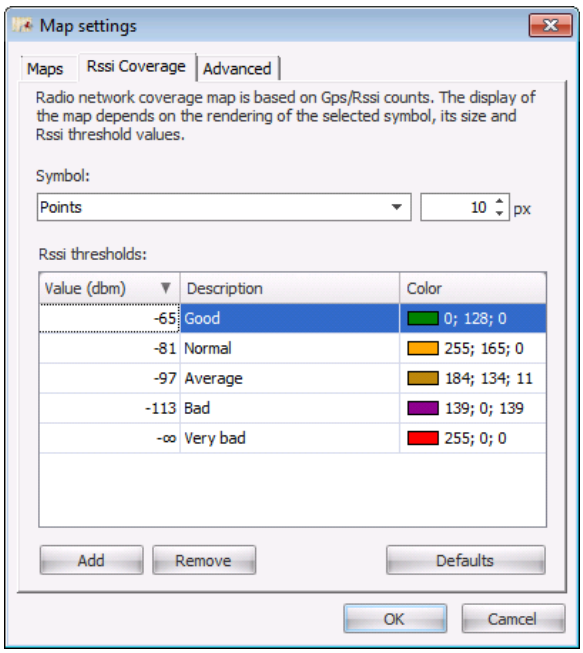
Type in map URL, as shown in the example.

- **Z** – zoom. Type in zoom value for the map.
- **X** – coordinate in X –direction.
- **Y** – coordinate in Y – direction.

Click ''**OK**'' to add a map.

Click ''**Add**'' button and select ''**Add T-Map**'' to add the internal map-making resource. For more details on supported map types see Appendix A: Supported Map Types.

2. On the **RSSI Coverage** tab set signal strength levels (RSSI) displaying on map:



Symbol – select displaying on map type in the dropdown list.

- **Points** – select to display RSSI level on map as dots that represent coordinates points for more detailed data view.
- **Regions** - select to configure RSSI zone in meters and display on map average data of RSSI level GPS coordinates for more common data view.

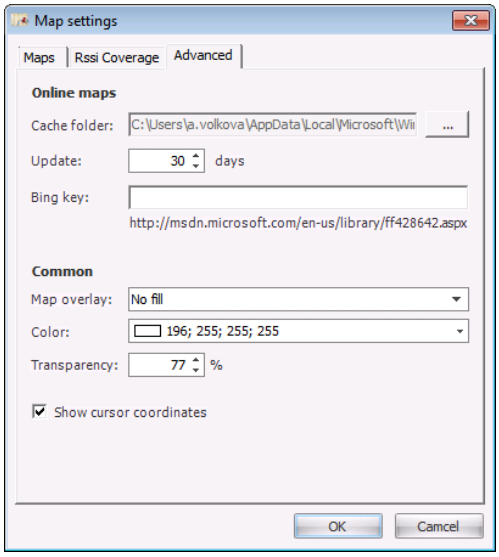
Specify **values**, add **description** and select **color** for RSSI level.

Click ''**Add**'' button to add new RSSI level.

Click ''**Remove**'' to remove selected RSSI level from the list.

Click ''**Defaults**'' button to apply default settings.

On the **Advanced** tab set advanced parameters for RSSI levels configuration:



Online maps

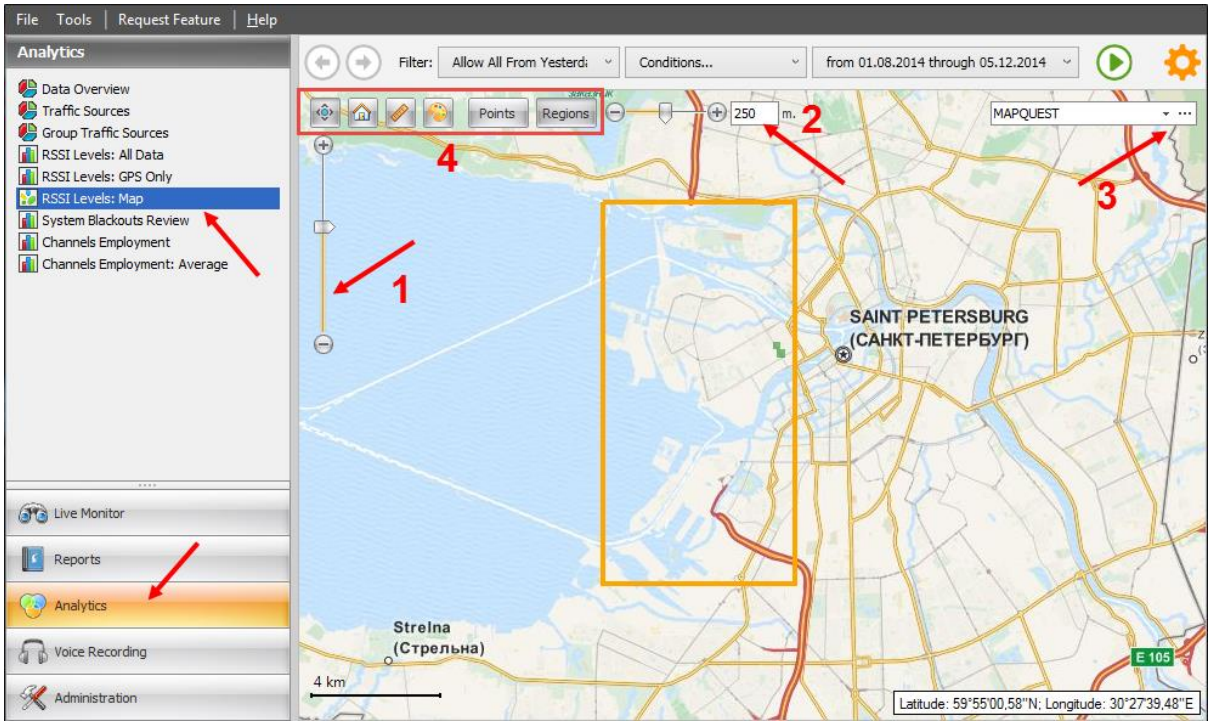
- **Cache folder** – select folder on the local PC to save map cache data.
- **Update** – select map updating interval.
- **Bing key** - user can try BING Maps for 90 days and then get a Basic Key. Visit http://msdn.microsoft.com/en-us/library/ff428642.aspx to get a Basic Key.

Common

- **Map overlay** – select fill for map overlay.
- **Color** – select color for map overlay.
- **Transparency** – select transparency level for map overlay.
- **Show cursor coordinates** – check to display current cursor coordinates on the map.

Click ''**OK**'' to save changes.

The report generates automatically.



1 – Zoom in/out a map.

2 – Points/Regions size scale. Allows change points size in pixels and regions size in meters.

3 – Available maps list.

4 – Map Toolbar.

Map Toolbar

- Toggles between map regions.

- Ruler tool to measure a distance.

- Enables/disables fill tool for the map to allow searching quickly RSSI levels on map.

- Toggles between RSSI level displaying modes: points and regions.

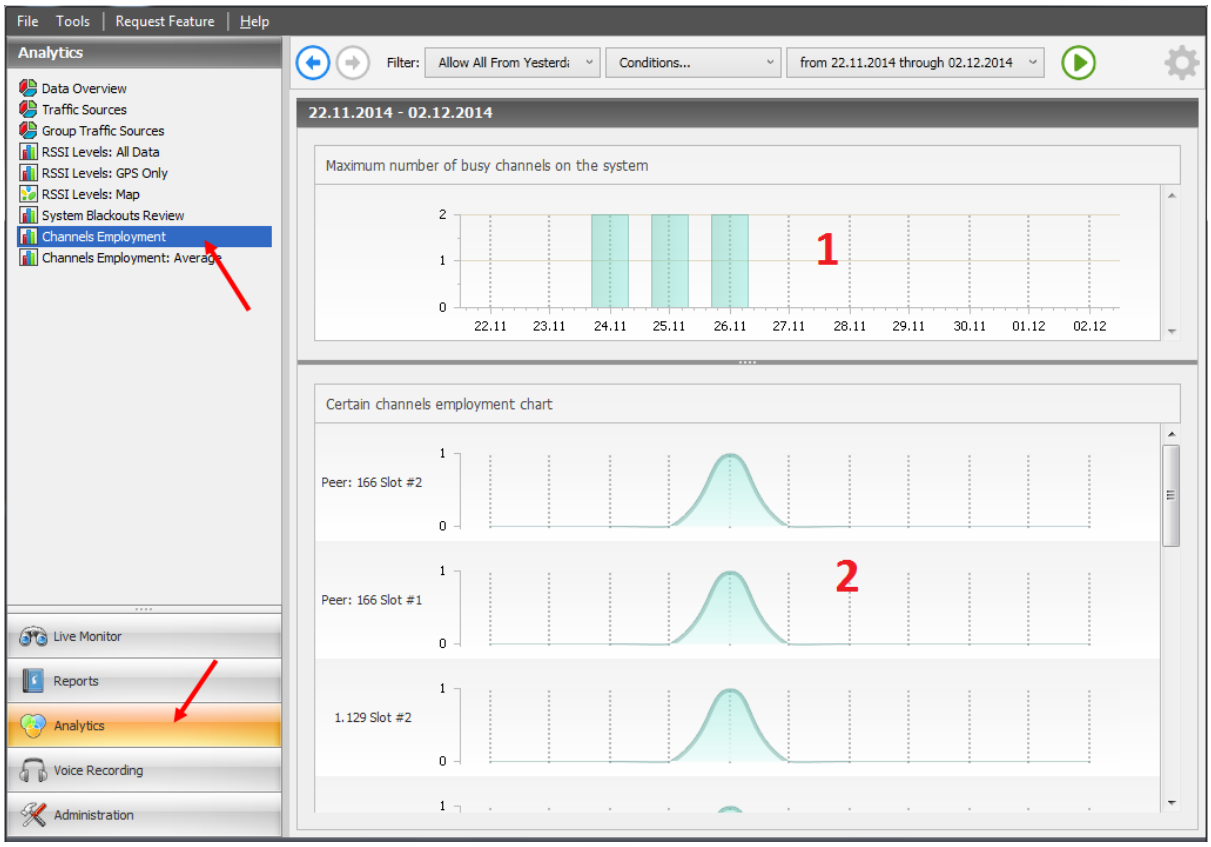
System Blackouts Review

Blackout is a time period when all channels busy in **Capacity Plus** and **Linked Capacity Plus** systems.

For more details on blackouts monitoring configuration see Data Persistence section.

Channels Employment

Shows details on channels busy in the system:

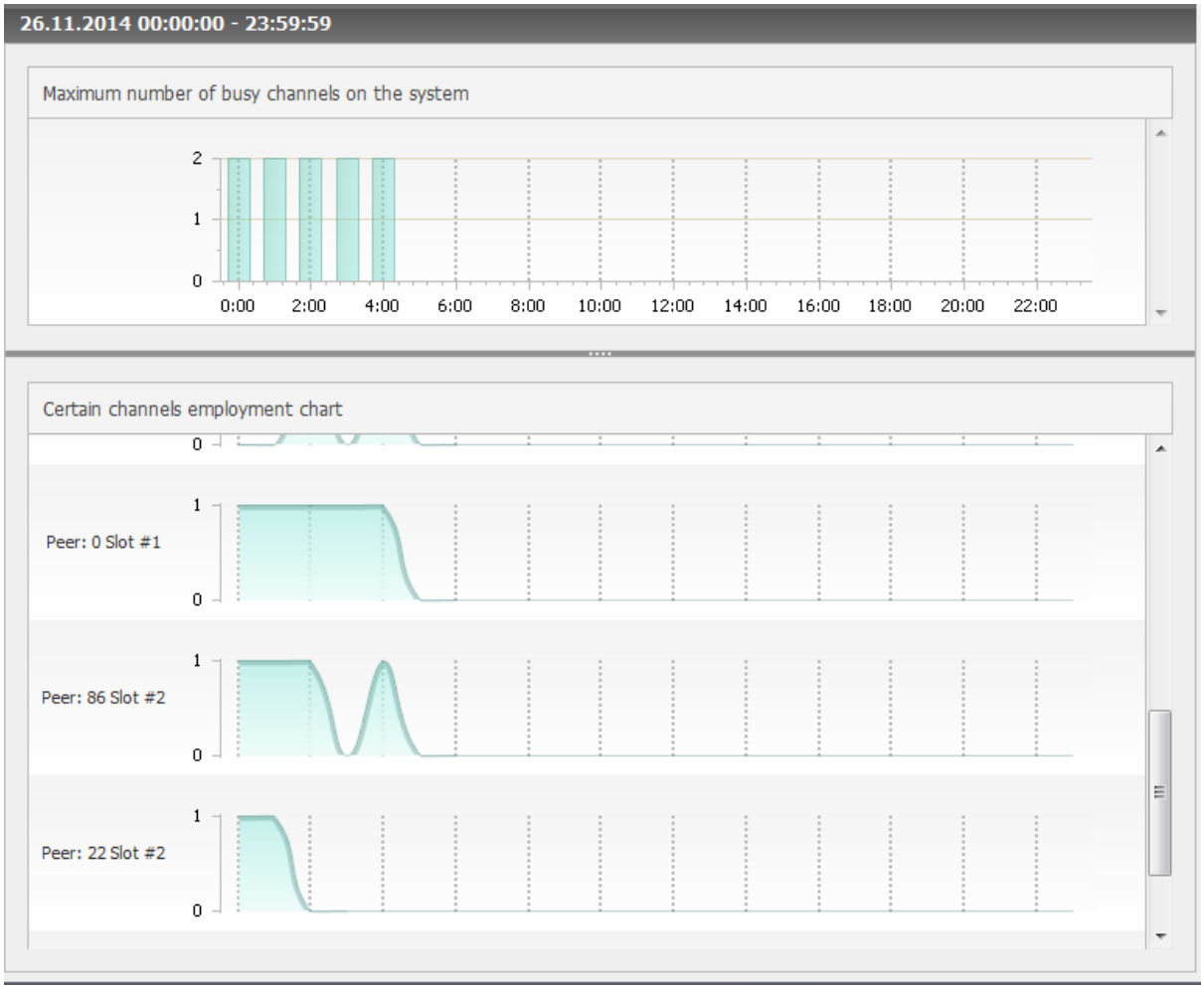


1 – **Channel busy diagram**. The x-axis represents time period, the y-axis represents maximum number of busy channels.

2 – **Channel busy sorted by peers and slots**.

Note: The x-axis of diagram (1) synchronized with certain channels employment chart (2).

Click the selected day on the schedule to see the details per calendar day:



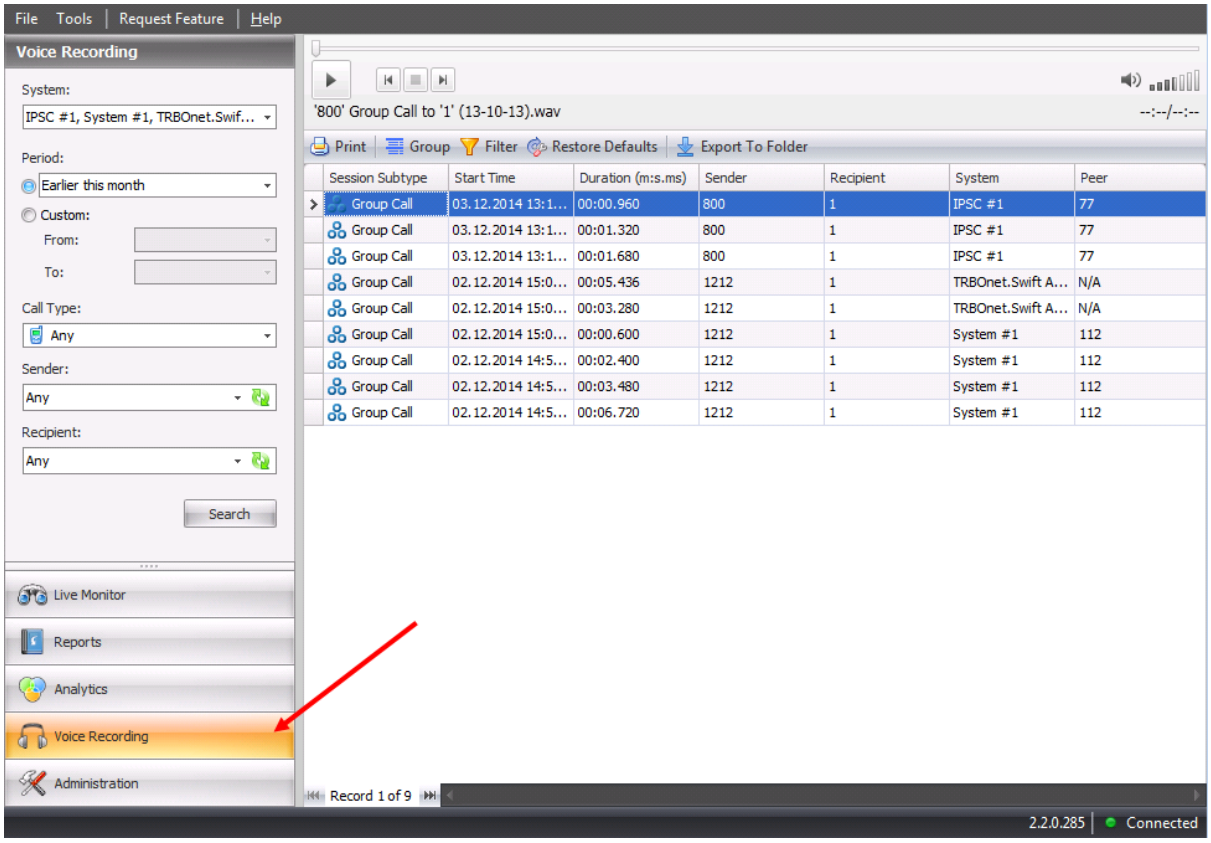
Channels Employment: Average

Shows details on total values of channels busy in the system.

For more details on report parameters see Channels Employment section.

Voice Recording

Go to **Voice Recording** page to listen to any voice call in the system.


File Tools Request Feature Help
Voice Recording
System:
IPSC #1, System #1, TRBOnet.Swif...
Period:
Earlier this month
Custom:
From:
To:
Call Type:
Any
Sender:
Any
Recipient:
Any
Search
Live Monitor
Reports
Analytics
Voice Recording
Administration
'800' Group Call to '1' (13-10-13).wav
Print Group Filter Restore Defaults Export To Folder
Session Subtype | Start Time | Duration (m:s.ms) | Sender | Recipient | System | Peer
Group Call | 03.12.2014 13:1... | 00:00.960 | 800 | 1 | IPSC #1 | 77
Group Call | 03.12.2014 13:1... | 00:01.320 | 800 | 1 | IPSC #1 | 77
Group Call | 03.12.2014 13:1... | 00:01.680 | 800 | 1 | IPSC #1 | 77
Group Call | 02.12.2014 15:0... | 00:05.436 | 1212 | 1 | TRBOnet.Swift A... | N/A
Group Call | 02.12.2014 15:0... | 00:03.280 | 1212 | 1 | TRBOnet.Swift A... | N/A
Group Call | 02.12.2014 15:0... | 00:00.600 | 1212 | 1 | System #1 | 112
Group Call | 02.12.2014 14:5... | 00:02.400 | 1212 | 1 | System #1 | 112
Group Call | 02.12.2014 14:5... | 00:03.480 | 1212 | 1 | System #1 | 112
Group Call | 02.12.2014 14:5... | 00:06.720 | 1212 | 1 | System #1 | 112
Record 1 of 9
2.2.0.285 Connected

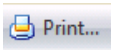
Voice Recording Filter

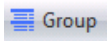
System	Select system to show voice recordings from.
Period	Select period in the dropdown list or set custom period using **from… to…** filters.
Call Type	Select type of voice recordings to show (Private Calls, Group Calls, etc.).
Sender	Select sender (Radio ID or Radio Alias) to show voice recordings from.
Recipient	Select recipient to show voice recordings.

Click ‘‘**Search**’’ button to show voice recording files according to filter.

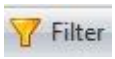
Toolbar

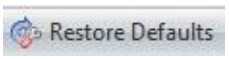
Dispatcher can manage voice recordings table data using table controls:

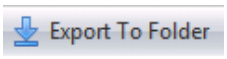
1. Click 

button to print the report on voice logging files.
2. Click 

button to group log records. Select column you want to group voice recording by. Drag and drop selected column header in the **Grouping** field.
3. Click

button to filter the data by a column. Type the data - criterion of filtering under the column header. To exit the filter mode click 

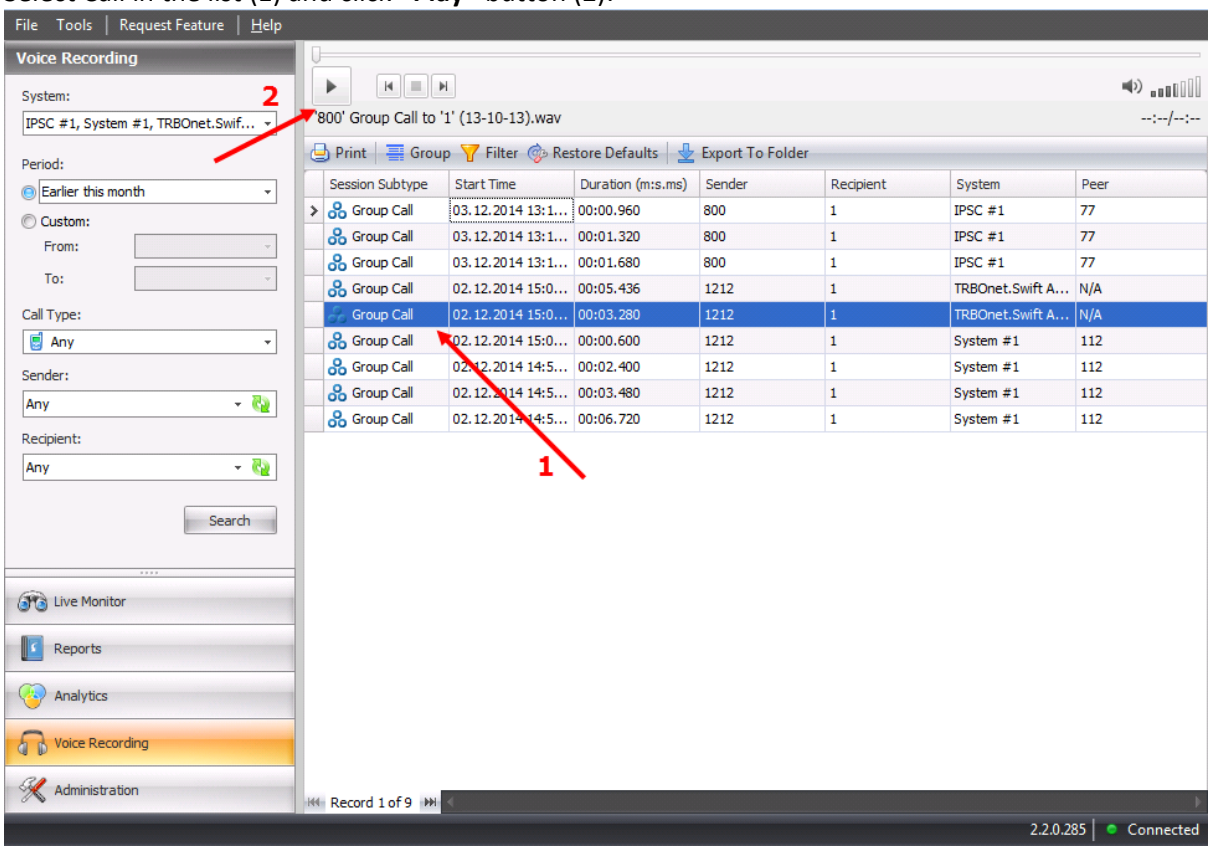
again.
4. Click 

button to apply default settings to the voice recording files.
5. Click 

button to export the voice recordings. Choose the folder to export voice recording files.

To Playback a Call

Select Call in the list (1) and click ''**Play**'' button (2):

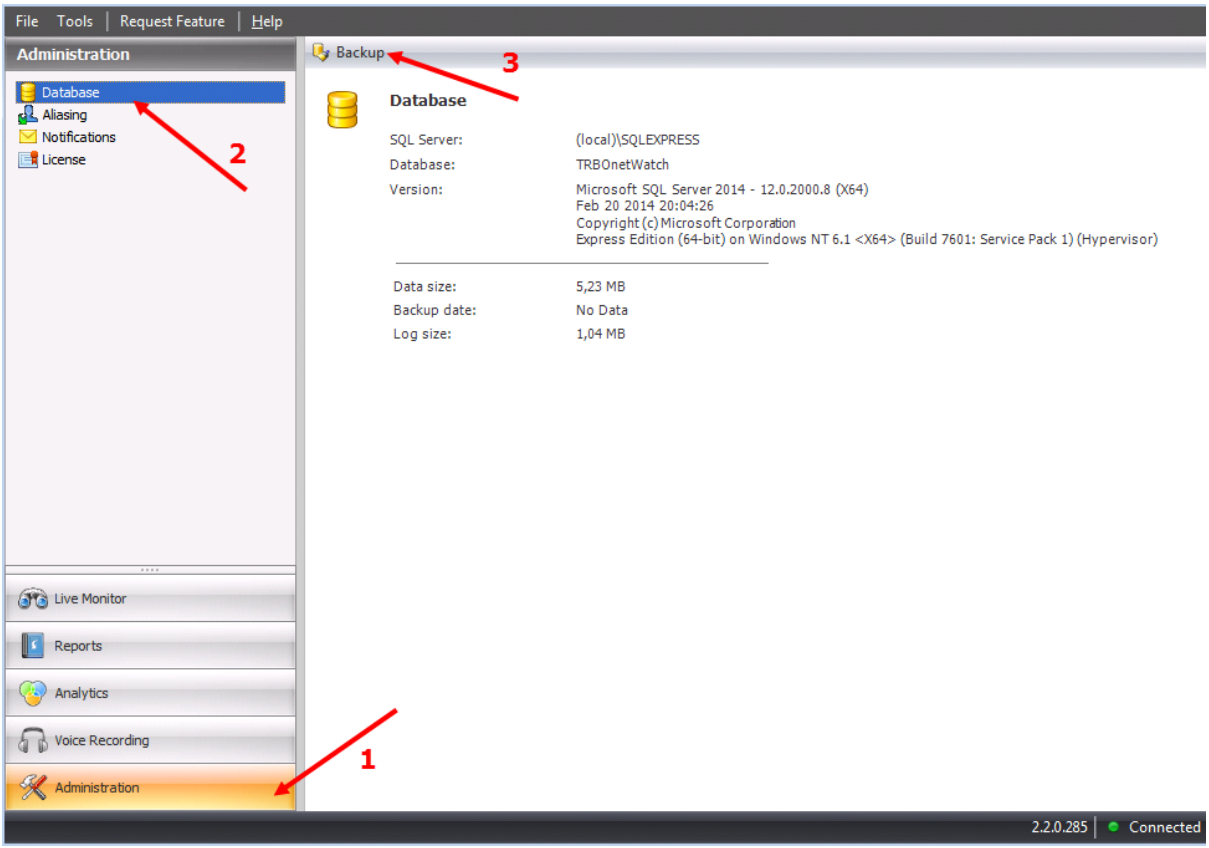

File Tools Request Feature Help
Voice Recording
System:
IPSC #1, System #1, TRBOnet.Swif...
Period:
Earlier this month
Custom:
From:
To:
Call Type:
Any
Sender:
Any
Recipient:
Any
Search
Live Monitor
Reports
Analytics
Voice Recording
Administration
2
1
'800' Group Call to '1' (13-10-13).wav
Print Group Filter Restore Defaults Export To Folder
Session Subtype | Start Time | Duration (m:s.ms) | Sender | Recipient | System | Peer
Group Call | 03.12.2014 13:1... | 00:00.960 | 800 | 1 | IPSC #1 | 77
Group Call | 03.12.2014 13:1... | 00:01.320 | 800 | 1 | IPSC #1 | 77
Group Call | 03.12.2014 13:1... | 00:01.680 | 800 | 1 | IPSC #1 | 77
Group Call | 02.12.2014 15:0... | 00:05.436 | 1212 | 1 | TRBOnet.Swift A... | N/A
Group Call | 02.12.2014 15:0... | 00:03.280 | 1212 | 1 | TRBOnet.Swift A... | N/A
Group Call | 02.12.2014 15:0... | 00:00.600 | 1212 | 1 | System #1 | 112
Group Call | 02.12.2014 14:5... | 00:02.400 | 1212 | 1 | System #1 | 112
Group Call | 02.12.2014 14:5... | 00:03.480 | 1212 | 1 | System #1 | 112
Group Call | 02.12.2014 14:5... | 00:06.720 | 1212 | 1 | System #1 | 112
Record 1 of 9
2.2.0.285 Connected

Administration

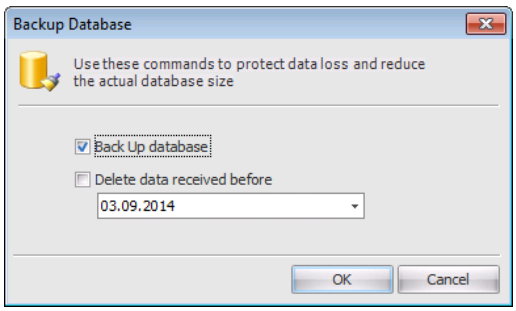
The interface allows to manage database backup, to assign Aliases for Radios, Groups and Peers, to configure E-mail Notifications and to view current License details.

Database

Go to **Administration** (1) **Database** (2) to view database parameters and backup the database:



Click ''**Backup**'' (3) to backup the database:

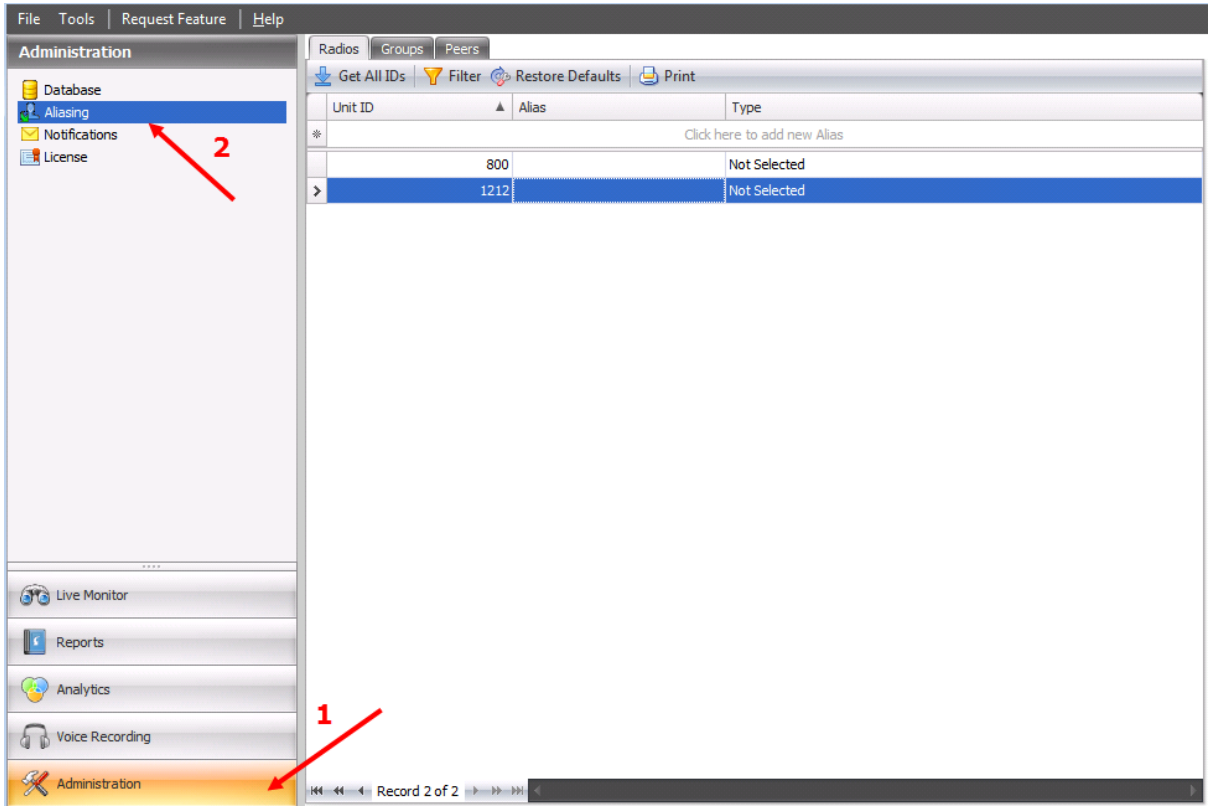


- **Back Up database** – select to allow database backup.
- **Delete data received before** – select to remove audio files and data from database. Select the date.

Click ''**OK**'' to start database backup.

Aliasing

Go to **Administration** (1) **Aliasing** (2) to assign aliases for system units to display in the Dispatch Console:

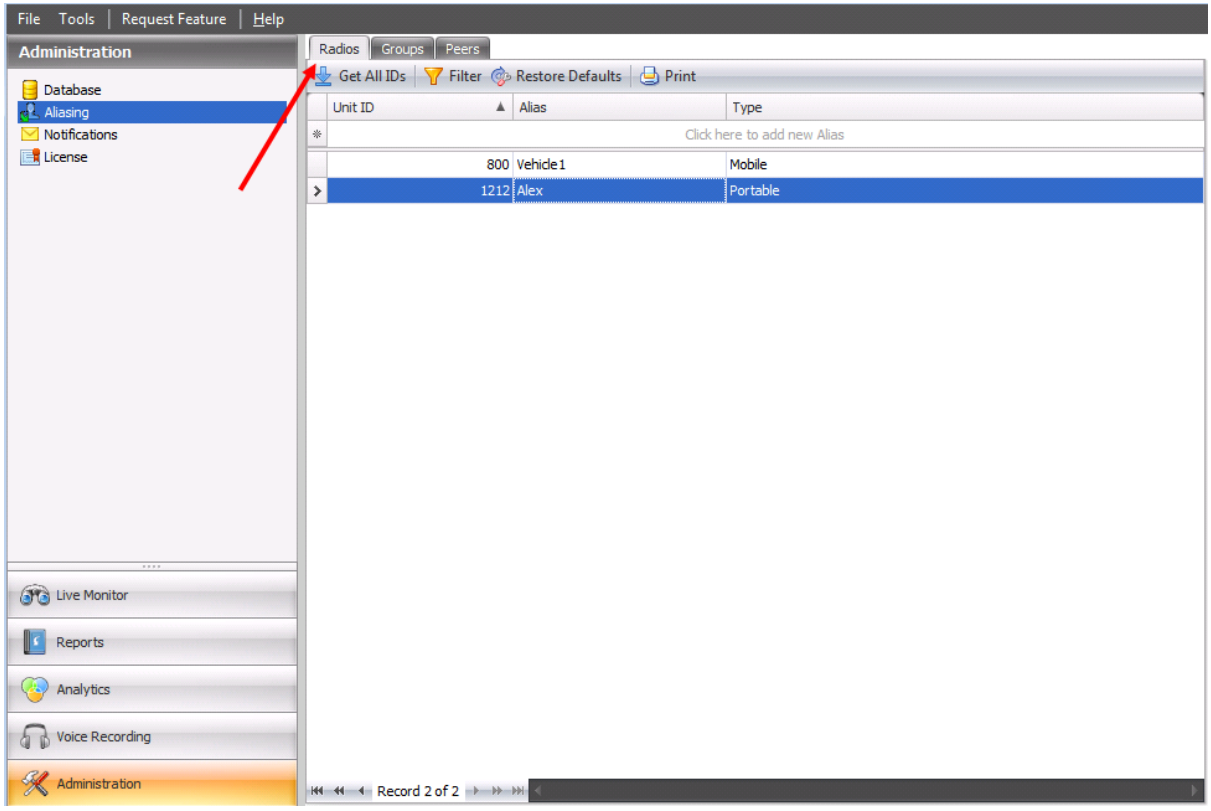


Toolbar

1. Click Get All IDs button to see the list of all subscribers.
2. Click Filter button to filter the data by a column. Type the data - criterion of filtering under the column header. To exit the filter mode click Filter again.
3. Click Restore Defaults button to apply default settings to the aliases table.
4. Click Print... button to print the aliases table.

Radios

On the **Radios** tab you can assign aliases for radios:

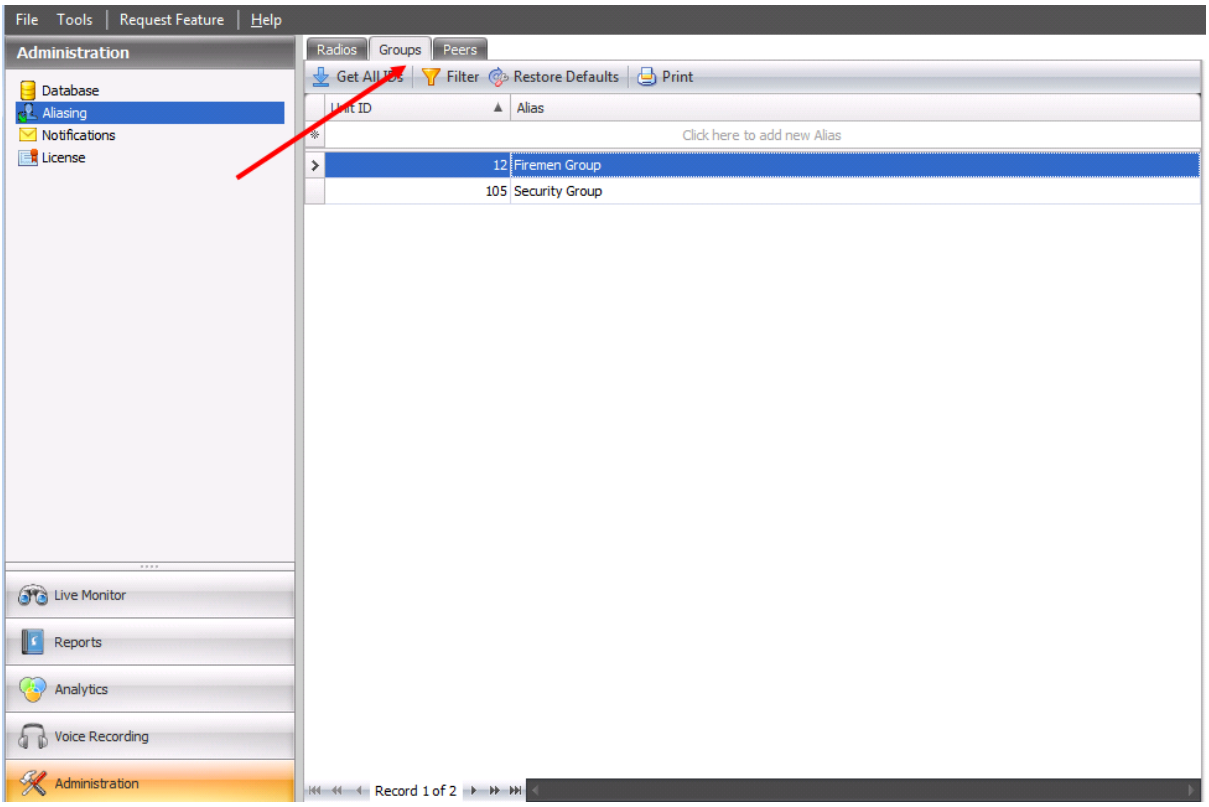


Select radio type (Not Selected/Portable/Mobile) in the ''**Type**'' column.

Type in an Alias for radio in the ''**Alias**'' column.

Groups

On the **Groups** tab you can assign aliases for radio groups:

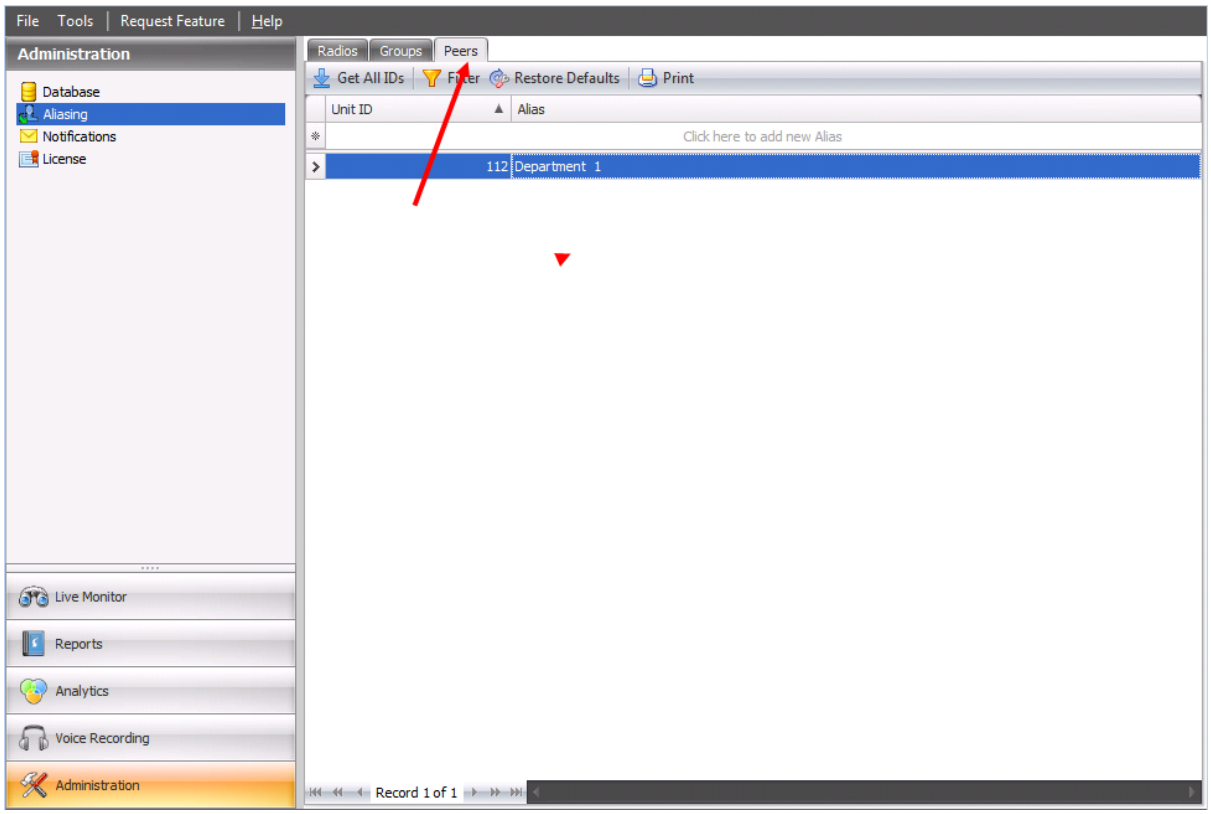


Type in a **Unit ID.**

Type in an Alias for radio group in the ‘’**Alias**’’ column.

Peers

On the **Peers** tab you can assign aliases for peers:

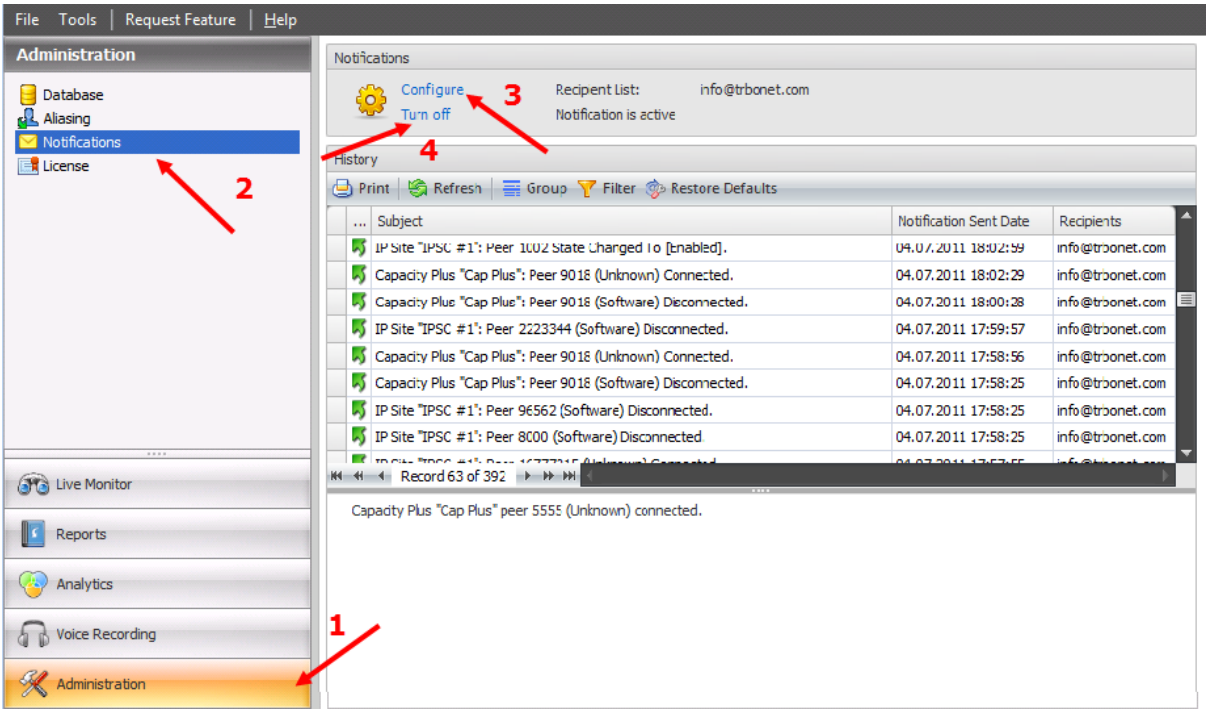


Type in a **Unit ID**.

Type in an Alias for peer in the ''**Alias**'' column.

Notifications

Go to **Administration** (1) **Notification**s (2) to see the list of system events and to configure Email notifications:

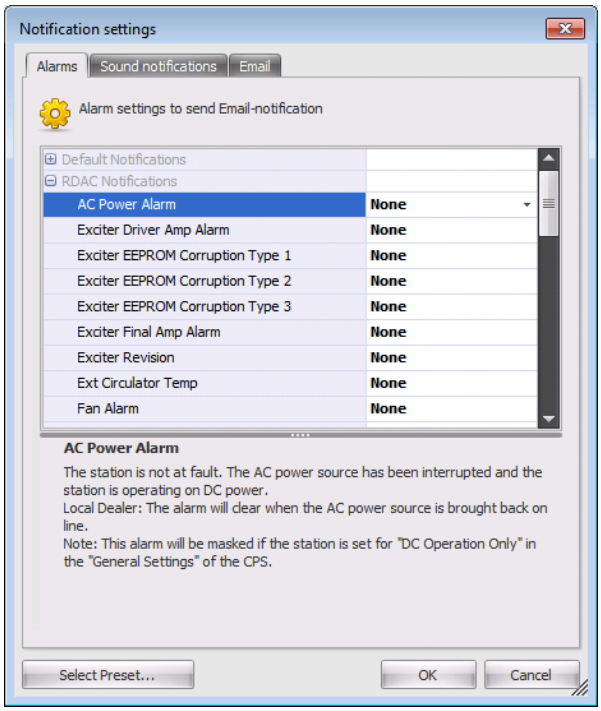


3 – Hit ''**Configure**'' link to set notifications parameters.

4 – Hit ''**Turn on/off**'' link to enable/disable email notifications.

Configuring Alarms

On the **Alarms** tab set parameters for Default and RDAC alarm notifications:


Notification settings
Alarms
Sound notifications
Email
Alarm settings to send Email-notification
Default Notifications
RDAC Notifications
AC Power Alarm None
Exciter Driver Amp Alarm None
Exciter EEPROM Corruption Type 1 None
Exciter EEPROM Corruption Type 2 None
Exciter EEPROM Corruption Type 3 None
Exciter Final Amp Alarm None
Exciter Revision None
Ext Circulator Temp None
Fan Alarm None
AC Power Alarm
The station is not at fault. The AC power source has been interrupted and the station is operating on DC power.
Local Dealer: The alarm will clear when the AC power source is brought back on line.
Note: This alarm will be masked if the station is set for "DC Operation Only" in the "General Settings" of the CPS.
Select Preset...
OK
Cancel

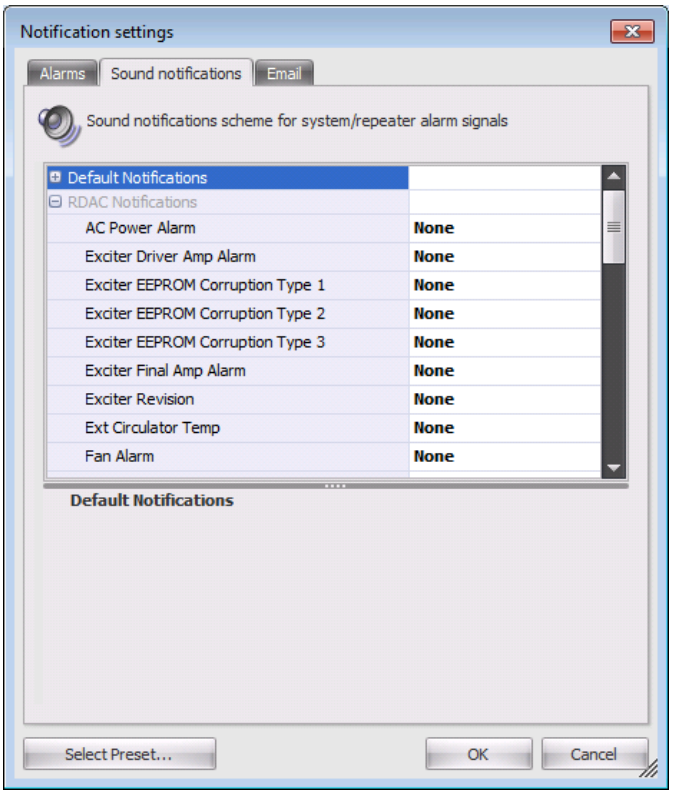
For default notifications select **True** or **False** values in the dropdown list to send alarm notification.

For RDAC notifications select one of the following:

- **None** – do not send alarm notification.
- **Detected** – send alarm notification when selected parameter was changed.
- **Released** – send alarm notification when selected parameter comes to the default state.
- **Both** – send alarm in case of both: ‘’**Detected**’’ and ‘’**Released**’’ states.

Sound Notifications

On the **Sound Notifications** tab set parameters for Default and RDAC sound notifications:



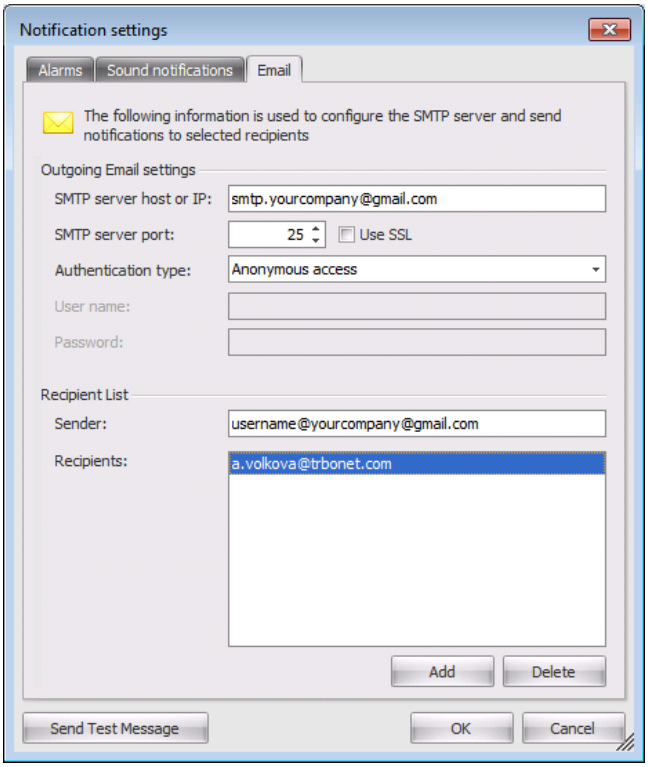
Select notification type in the dropdown list.

Email Configurations

Configure SMTP server parameters and recipient list.

SMTP Server is intended to send emails from users to mail servers and between mail servers for further delivery to the recipient. To receive emails you need to use POP3 server.

For example, Administrator enables email notifications from TRBOnet Watch to particular email users in case of Alarms on selected radios. At this case, radio sends alarm to TRBOnet Watch RadioServer which converts alarm to text and forwards it as email to particular email addresses (e.g. admin@yourcompany.com).



Outgoing Email Settings

- **SMTP server host or IP** – Simple Mail Transfer Protocol is the protocol for email transmission via IP networks. server host (e.g. smtp.gmail.com for gmail) or IP (e.g. 77.232.61.123) to send emails.
- **SMTP server port** the default port is 25. Can be used in case server does not require secured connection. Port value depends on mail system you are using, e.g., for gmail SMTP server port is 465 with SSL.
- **Use SSL** – select to use a secure connection to selected SMTP server (use special port to connect a mail server).

Authentication Type:

- **Anonymous access** – select to use an anonymous access to connect SNMP server.
- **Windows authentication** – select to connect with Windows authentication to connect SNMP server.
- **Use SMTP user name and password** – select if you are going to connect to SMTP server using an existing user name and password.
  - ✓ **User name** – type in the SMTP user name.
  - ✓ **Password –** type in the SMTP password.

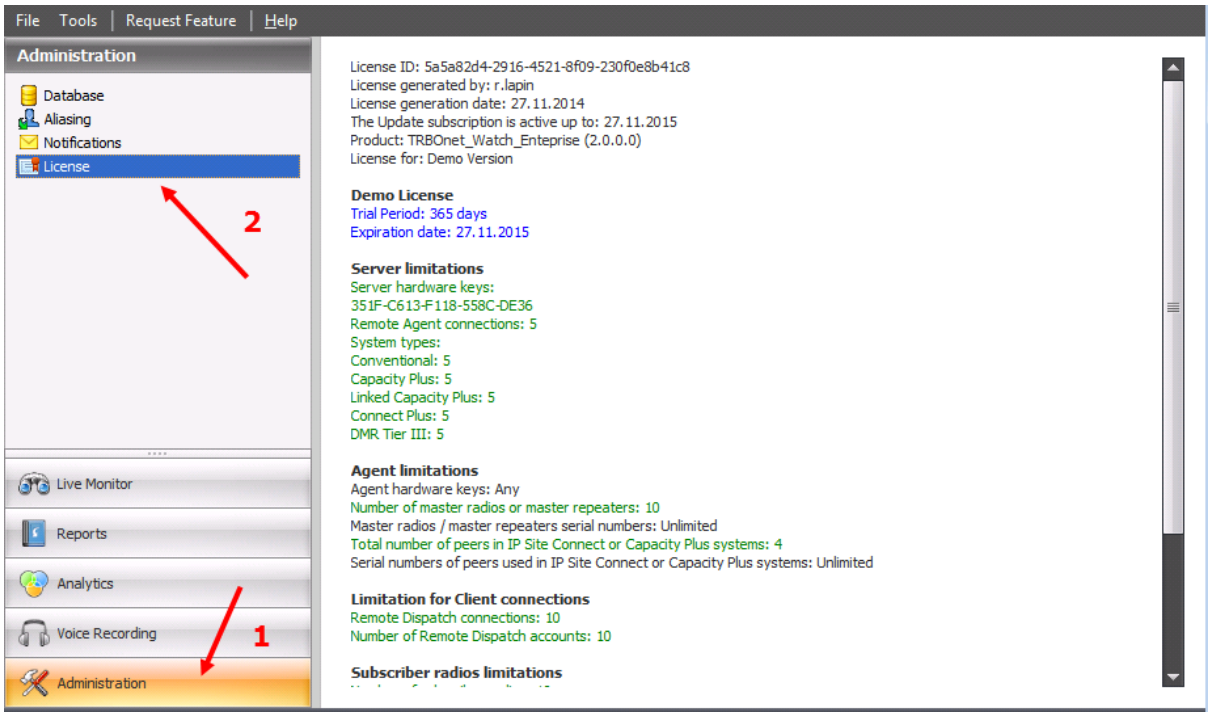
Recipient List

- **Sender** – input email address to send test email to. Equal to field ''**From**'' when a user receives email.
- **Recipients** – click ''Add'' button to add recipient email address (e.g. username@yourcompany.com).
- **«Send Test Message»** – click to send a test message from email address specified in «Sender» field to a selected email.

Click ''**OK**'' to save changes.

License

Go to **Administration** (1) **License** (2) to see your current license limitations:



Appendix A: Supported Map Types

Online maps:

- **OpenStreetMaps** – free online map. Includes MAPNIK, CYCLE, TRANSPORT, LANDSCAPE and MAPQUEST subtypes. For more details on OpenStreetMaps visit official web site: http://www.openstreetmap.org
- **Microsoft BING** – commercial maps from Microsoft. Includes BING_ROAD, BING_AREA and BING_HYBRID subtypes. User can try BING Maps for 90 days and then get a Basic Key. Visit http://msdn.microsoft.com/en-us/library/ff428642.aspx to get a Basic Key.

Offline Maps

- **TRBOmap** – internal map-making resource. User can customize a part of online maps according to requirements. For more details on map calibration go to TRBOnet knowledge base and read the following article: http://kb.trbonet.com/public.pl?Action=PublicFAQZoom.ItemID=27.
- **TMap** – internal map-making resource. User can create an offline copy of online maps for selected region according to requirements. User can create a map using any picture via TRBOnet.Map Edit tool. Go to C:\Program Files\Neocom Software\TRBOnet Watch\TRBOnet.MapEdit.exe. For more details on map calibration go to TRBOnet knowledge base and read the following article: http://kb.trbonet.com/public.pl?Action=PublicFAQZoom.ItemID=28.
- **MapLib map format** – free offline map. Requires a lot of internal memory. Requires Franson GpsTools. For more details on Franson GpsTools visit the official web site: http://franson-gpstools.software.informer.com/2.3/